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TRANSACTIONS

OF THE

HORTICULTURAL SOCIETY

OF

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SECOND SERIES.

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1835.

ADVERTISEMENT.

THE Committee appointed by the Horticultural Society to direct the publication of the Papers read before them, take this opportunity to inform the Public, that the grounds of their choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them, without pretending to answer for the certainty of the facts, or the propriety of the reasonings, contained in the several Papers so published; which must still rest on the credit or judgment of their respective Authors.

It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

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TRANSACTIONS

OF

THE HORTICULTURAL SOCIETY.

I. *A Report upon the Varieties of Pine-Apple cultivated in the Garden of the Horticultural Society. By Mr.* Donald Munro, *F. L. S. Gardener to the Society.*

Read December 7 and 21, 1830, and January 4, 1831.

In furnishing the first of a series of reports upon the Fruits cultivated by the Society, I may be permitted to explain that if the Pine-Apple has been selected in preference to kinds more generally useful, this has happened entirely in consequence of the materials relating to that fruit happening to be in the most complete state.

It would be superfluous to occupy the attention of the Society with a laboured enquiry into the history or introduction of the Pine Apple, to which I could add nothing that has not been stated already in works long before the public. I, therefore, proceed at once to what forms the proper subject of this paper, a Classification and Description of all the Pine-Apples that have fruited in the Society's Garden.

But in the first place it is proper to mention how the extensive collection of the Society has been brought together. In the year

1824-5 it was thought advisable to publish a catalogue of the fruits then growing in the Garden. As the number of Pines at that time was very inconsiderable, printed forms with ruled columns were sent to such Members and Correspondents of the Society as were known to be extensive cultivators of that fruit; in these were to be noted the name, character of the leaves, character of the fruit and usual weight, usual time of ripening, age at which the plants fruit, from whence obtained, and such other observations and remarks as the nature of the cases might admit of. Fifty-eight of these forms carefully filled up, were returned to the Secretary, by which means the foundation was laid of the collection we possess, and a mass of information was obtained, that has been of the greatest service in drawing up this paper. Plants were liberally supplied by the gentlemen by whose orders the returns were filled up; about the same time some valuable additions were received from Correspondents abroad; and thus it was found possible to enumerate ninety five sorts in the catalogue. In the year 1828 the collection had increased to four hundred and fifty names, but so great a number of these were duplicates that, five of the catalogue names remaining uncertain, the whole of the remainder are reduced to the following fifty two distinct varieties.

In order to facilitate their discrimination, I have first separated the kinds reputed to be species, which are readily known by their peculiar habit, and I have then distributed the varieties of Ananassa sativa, or the true Pine-Apples, in classes and divisions, characterised by such distinctions as have been found by experience most permanent. After much consideration it has been determined to employ the different degrees of serrature in the leaves as the primary mode of division, because it is they that cause in the greatest degree that natural habit of the varieties by which a practised eye will recognise them without an inspection of the fruit. The groups so formed are the least artificial that could be discovered, for the

form of the fruit and colour of the flowers, although excellent marks of distinction, separate varieties which are almost identical in their general habit; for this reason such characters have been admitted as only of secondary importance.

In order to render the arrangement as distinct as possible, a tabular view has been made to precede the more detailed descriptions, and I would take the liberty of recommending those who make use of this report for the purpose of verifying their Pines, to consult the table before having recourse to the descriptions themselves.

The whole of the means employed in drawing up this paper have been derived from notes made at the Garden during the last five years upon plants and fruit, in all cases carefully and repeatedly compared in every stage of their growth.

In arranging the synonyms, published authorities have been referred to in all cases where they existed; but as by far the greater number of Pine-Apples are unpublished, it has necessarily resulted that for a very considerable proportion of the synonyms no other authority could be cited than that of English gardens.

To Mr. James Duncan, the present Under Gardener in the Forcing department, a young man of extensive practical knowledge, I am much indebted for assistance in arranging and drawing up the descriptions.

In order to diminish the trouble of those who may consult this Report merely with a view to the selection of the best sorts for cultivation, short notes upon the comparative qualities of the most important varieties have been inserted at the end of the Paper.

CLASSIFICATION OF PINE-APPLES.

Sp. 1. Ananassa bracteata.

1. Scarlet.

Sp. 2. Ananassa debilis.

2. Waved-leaved.

Sp. 3. Ananassa lucida.

3. King. 4. Fisherwick Striped Globe.

Sp. 4. Ananassa sativa.

* *Leaves spineless.*

a. Flowers purple.

5. Havannah. 6. Smooth Havannah.

b. Flowers lilac, nearly white.

Fruit globular.

7. Green Antigua.

Fruit pyramidal.

8. Striped smooth-leaved Sugar-loaf.

** *Leaves with minute Spines,* (about 11 in an inch on an average).

a. Flowers purple.

Fruit oval.

9. White Providence. 10. Green Java. 11. Black Jamaica.

Fruit cylindrical.

12. Orange Sugar-loaf. 13. Downton Havannah.

Fruit pyramidal.

14. New Jamaica.

b. Flowers lilac.

15. New Demerara. 16. Striped Surinam.

*** *Leaves with middle sized Spines,* (about 6 or 7 in an inch on an average).

a. Flowers purple.

Fruit cylindrical.

17. Sierra Leone. 18. Ansons. 19. Montserrat.
20. Trooper's Helmet.

Fruit pyramidal.

21. Green Providence. 22. St. Vincent.

b. Flowers lilac.

Fruit cylindrical.

23. Globe. 24. Lemon Queen. 25. Otaheite. 26. Surinam.
27. Buck's Seedling Globe.

Fruit pyramidal.

28. Brown leaved Sugar-loaf. 29. Brown Sugar-loaf.
30. Mealy leaved Sugar-loaf. 31. Black Sugar-loaf.
32. Striped leaved Sugar-loaf. 33. Trinidad. 34. Buck's Seedling.
35. Enville. 36. New Enville. 37. Spring Grove Enville.
38. Lord Bagot's Seedling. 39. Blithfield Orange.

**** *Leaves with large rigid Spines,* (about 4 in an inch on an average).

a. Flowers purple.

40. Black Antigua. 41. Welbeck Seedling. 42. Ripley.

b. Flowers lilac.

Fruit globular.

43. Russian Globe. 44. Russian Cockscomb.

Fruit cylindrical.

45. Queen. 46. Ripley's Queen. 47. Green Queen.
48. Moscow Queen. 49. Striped Queen.
50. Silver Striped Queen. 51. Antigua Queen. 52. Blood Red.

1. Scarlet Pine.

Syn. Scarlet. } *Hort. Soc. Cat.* No. 76.
Brazilian Scarlet. }
Ananassa bracteata. *Bot. Reg.* Vol. XIII. fol. 1081.

Leaves remarkably long and flat, rather broad and flaccid, of a yellowish green, often tinged with pale brown, and almost destitute of mealiness; spines very strong, far asunder, and rather regular. Flowers large, dark purple, contrasting beautifully with the scales which are of a brilliant scarlet at that stage of the growth. Fruit pyramidal, before ripening of a dullish yellow colour, on its approaching maturity it changes to a pale green, and becomes a little mealy; when ripe palish yellow. Pips small and slightly prominent, being half covered with the scales, which terminate in very long, broad, reflexed points, of a dull scarlet colour. Flesh very pale yellow, slightly fibrous, very juicy and soft, slightly acid without much flavour. Crown large, leaves rather numerous and erect.

Presented by Robert Barclay, Esq. by whom it was procured from Lisbon in 1820. Mr. Barclay received it from Don Joachim de Paes, who introduced it into Portugal from the Brazils. It is rather a sweet and highly flavoured sort, producing fruit from three to five pounds, but its great merit consists in its beautiful appearance just after the flowers have withered.

2. Waved-leaved Pine.

Syn. Waved-leaved. *Hort. Soc. Cat.* No. 94.
Ananassa debilis. *Bot. Reg.* fol. 1068. *Pomological Magazine, tab.* 1.

"Leaves large, flaccid, spreading, wavy, dark green, slightly mealy above, and stained with dull purple; teeth reddish, small, equal sized; the full-grown leaves are about three feet long, and a well grown fruiting plant occupies a space of about three feet in diameter. Flowers pale purple. Fruit oblong, or tun-shaped; before ripening very deep green, when ripe dull yellow, with a greenish cast on one side; nearly destitute of mealiness. Pips projecting, middle-sized, pointed, as long as the scales, the uppermost of which are nearly destitute of a point, the lowest have a withered, deeply toothed point. Flesh yellow, transparent, very tender, delicate, and juicy; flavour extremely pleasant, with a slightly perceptible acid. Core woody. Crown large, not disposed to become cock's-comb shaped, or to be proliferous."

Described as above in the Pomological Magazine, from a specimen in the Society's Garden.

First introduced into notice by Mr. MILLER, of the Bristol Nursery; but its origin is unknown. Readily distinguished from all others by its flaccid waved leaves, which never acquire the rigid, erect character of the Queen Pine and its varieties. From its peculiar habit, it has been considered in the work above quoted, as a distinct species. It fruits in about two years from the sucker.

3. KING PINE.

SYN. King. *Speechly's Treatise*, 2nd Ed. p. 15.
Grass-Green King.
Common King. } *Hort. Soc. Cat.* No. 46.
Old King.
Havannah. *Nicol's Gard. Kal.* 4th Ed. p. 304.
Ananas viridis inermis, *of the French.*

Leaves rather long, somewhat broad and keel-shaped, margins destitute of spines and sometimes a little undulated, of a clear shining yellowish green, and entirely free from mealiness; its growth is also very peculiar, the centre leaves embrace each other very closely and require considerable force to separate them. Flowers purple. Fruit cylindrical inclining to ovate of a bright olive colour before ripening, bright orange when ripe, flesh yellow, opaque, firm, and free from fibre, sweet and pleasant with only very little acid. Crown large, leaves embracing each other in the centre.

This Pine according to Martin in his Edition of MILLER's Dictionary, "was raised from seeds taken out of a rotten fruit which came from the West Indies to HENRY HEATHCOTE, Esq.;" it is a very handsome middle sized fruit, generally weighing from three to four pounds, but is rather tardy in fruiting. It, and the other smooth leaved varieties, require less water and more heat than the other sorts.

4. FISHERWICK STRIPED GLOBE PINE.

SYN. Fisherwick Striped Globe. *Hort. Soc. Cat.* No. 34.

Readily distinguished from all others by its leaves; in appearance somewhat resembles the King Pine, but differs in the following particulars. The leaves have weak irregular spines on their margins, they are rather of a darker green, slightly tinged with pale

brown, more particularly in the centre of the plants, they are also somewhat thickly interspersed with silvery specks on the under surface.

Said to have originated at Fisherwick, the seat of the Hon. F. G. Howard, from a stool of the Globe Pine; it seems to be an exceedingly worthless variety, having been six years in this collection without having produced a fruit.

5. Havannah Pine.

Syn. Havannah. *Speechly's Treatise*, 2nd Ed. p. 13.
Brown Havannah. *Brookshaw's Pomona Britannica*, t. 43.
Smooth leaved Antigua. } *Hort. Soc. Cat.* No. 9.
Smooth Antigua. }
Ripley, }
Ripley's, } *of many English Gardens.*
Old King, }
Common King, }
Ananas semi-serrata, *of the French.*
Lapete Pine Apple, *in the Island of St. Vincent.*

Leaves narrow, long and spreading, of a light bluish green, considerably tinged with pale brown, and slightly mealy; spineless except sometimes, when a few appear near the points. Flowers purple. Fruit cylindrical, sometimes tapering a little to the summit, before ripening dark purple and rather thickly covered with meal; when ripe of a darkish orange. Pips large, flat and a little depressed in the centre; scales covering about one third part of the pips, and ending in a long reflexed point. Flesh pale yellow, rather solid and without much fibre, juicy, but neither sweet nor very highly flavoured. Crown large, leaves numerous, long and spreading.

Origin unknown; cultivated by Speechly at Welbeck, before the publication of his Treatise: not a favourite with Gardeners by reason of the spreading character of its leaves, nor of such excellence as to warrant the introduction of more than a very limited number of plants in any collection.

6. Smooth Havannah Pine.

Syn. Smooth Havannah. *Hort. Soc. Cat.* No. 39.
Green Havannah. *Hort. Soc. Cat.* No. 38.
Havannah, *of some Gardens.*
Ananas Antigua aurantiaca, *of the French.*

The leaves of this variety differ from those of the one just described, in being of less robust growth, rather more tinged with brown, and much more mealy. The Fruit is of the same form and appearance as the Havannah, but is seldom so large. The Flesh is of the same colour and consistency, but abounds with a rich, sweet, highly flavoured juice. The Crown is generally considerably smaller than in that sort.

The origin of this Pine is unknown; it is not however of recent origin or introduction, having been grown for a considerable length of time in the Pine Stoves of different parts of England. It was imported by the Society from St. Vincent's.

7. Green Antigua Pine.

Syn. Green Antigua. *Hort. Soc. Cat.* No. 6.
Smooth-leaved Green Antigua. *Brookshaw's Pom. Brit.* t. 44.
Smooth Green Havannah, *of some Gardens.*
Ananas sans épines, } *of the French.*
Ananas Malabarica, }

The leaves of this variety differ from the Havannah in being considerably shorter, and of a pale colour; they are also broader, more keel-shaped and much stronger than in that variety, and also entirely destitute of spines. Flowers of a very pale lilac colour. Fruit globular, sometimes inclining to oval; before ripening of a dull green, and very thickly covered with meal, when ripe deep yellow. Pips middle sized, roundish, and projecting to a very acute point. Scales covering about one third of the pips, and ending in narrow short points. Flesh deep yellow, transparent, rather stringy, with a little acidity, but neither very sweet nor highly flavoured. Crown rather large, leaves numerous and reflexed.

Like the other smooth varieties, its quality would not warrant the introduction of more than a very few plants into any collection. It has been imported both from Maranhao and St. Vincent's.

8. Striped Smooth-leaved Sugar-loaf Pine.

Syn. Smooth Striped-leaved Sugar-loaf. *Nicol's Gardener's Kal.* 4th Ed. p. 304. *Hort. Soc. Cat.* No. 89.
Smooth-leaved Sugar-loaf. *Hort. Soc. Cat.* No. 87.

Readily known by its leaves, which are entirely destitute of spines, and striped with dull purple. The Flowers are very pale lilac. The Fruit is of the same form and appearance as the other varieties of Sugar-loaf. Flesh deep yellow, remarkably soft, with scarcely any fibre or acidity, a little sweet but neither rich nor juicy. Crown middle-sized, leaves very numerous.

This extremely worthless variety originated sometime previous to the publication of Speechly's Treatise, and seems now to be almost lost in the country.

9. White Providence Pine.

Syn. Providence. *Speechly,* 2nd Ed. p. 7.
New Providence. *Nicol's Gard. Kal.* 4th Ed. p. 304.
White Providence.
Mealy-leaved Providence. } *Hort. Soc. Cat.* No. 57.
Ananas Providentia, *of the French.*

Leaves large, long, broad and spreading, of a light bluish green colour, sometimes blotched with a deeper shade and very mealy; spines very small, thickly set and rather irregular. Flowers large, dark purple. Fruit oval or tun-shaped,* nearly equal in size at top and bottom, very dark green or purple, and thickly covered with meal, on approaching maturity gradually changing to a reddish yellow. Pips very large and nearly flat, sometimes a little depressed in the centre. Scales covering nearly half the pips, and terminating in shortened blunt points. Flesh white, opaque, sweet and juicy without much flavour, slightly stringy and rather soft and melting. Crown large, leaves numerous and rather spreading.

Some very large fruit of this kind have been grown in various parts of the country, particularly at Ragley by Mr. Baldwin, at Stackpole Court by Mr. Buchan, at Shugborough by Mr. Mc Murtrie, and at Rheola Vale, Neath, Glamorganshire, by Mr. Dixon,

* Speechly says it is "inclining to a pyramidical form," however, the specimens which I have had an opportunity of examining, are invariably of the form above described.

Gardener to John Edwards, Esq. Mr. Edwards's fruit weighed fourteen pounds, twelve ounces, including four gill suckers, and measured twenty-six inches in circumference, and twelve inches in height; the usual size is from five to ten pounds, and although deficient in point of flavour, it is found to be greatly improved by being allowed to remain on the plant until quite ripe.

The name of White Providence has been adopted (in preference to that of Providence given it by Speechly) in contradistinction to Green Providence.

10. Green Java Pine.

Syn. Narrow-leaved Java. *Hort. Soc. Cat.* No. 45.

Readily distinguished by its long, broad, palish green leaves, with small feeble spines; they are also very flat, and entirely free from any tinge of brown or purple. Flowers large, dark bluish purple. Fruit oval, sometimes tapering a little to the summit, weighing from four to five pounds; before ripening light green, and lightly covered with meal, when ripe of a fine clear citron colour. Pips rather above the middle size and flat. Scales cover fully one third of the pips, and end in long narrow points. Flesh pale yellow, rather soft, juicy and melting with a rich pleasant acid. Crown middle sized, leaves not very numerous.

Presented by the late Sir Thomas Stamford Raffles, during his residence in Java; from its recent introduction enough is not known of it to decide on its merits as a winter Pine.

11. Black Jamaica Pine.

Syn. Black Jamaica. *Brookshaw's Pom. Brit.* t. 40.
Montserrat. *Speechly and some Gardens.*
Jamaica. *Hort. Soc. Cat.* No. 42.
Copper-coloured.
Tawny. } *Hort. Soc. Cat.* No. 14.
Black Barbadoes, *of some.*
St. Vincent's Sugar-loaf, *in St. Vincent's.*

Leaves rather long and narrow, slightly spreading and somewhat keel-shaped, of a dull green, tinged with a dark brown colour and rather mealy. Spines short, regular,

and thinly set. Flowers purple. Fruit oval, not much lengthened, rather compressed at the ends, colour before ripening very dark olive, afterwards a dark orange inclining to that of copper. Pips roundish, irregularly angular, about the middle size, rather prominent at the margins and concave in the centre. Scales covering one third the Pips and terminating in lengthened points. Flesh pale yellow, opaque, firm, slightly stringy, very rich, juicy and high flavoured. Crown large, spreading and very mealy.

A Pine of great excellence, weighing from three to five pounds, deserving to be generally cultivated, and richly meriting the character given it by Speechly, namely; that " in the autumnal months and even during winter it produces a fruit much more swelled and more perfect than any of the other sorts, and not liable to suffer by decay or imperfection either in the fruit or stalk, as is usual with those of the other sorts, in a season when the sun's power is not great." The Ripley however, is a sort in every respect equal to the Black Jamaica as a winter fruit. It has been thought advisable to adopt the name of Black Jamaica in preference to Montserrat, because the former is that under which it is almost universally known, while the name Montserrat which usually belongs to a different and very inferior variety is applied to the Black Jamaica in only a very few places.

12. Orange Sugar-loaf Pine.

Leaves rather long and narrow, somewhat keel-shaped and a little spreading, of a dull green, considerably tinged with dark brown and rather mealy; spines short, thinly set and regular. Flowers pale purple. Fruit cylindrical, before ripening very dark olive, somewhat shining and slightly mealy; when ripe deep yellow inclining to an orange colour. Pips large and flat. Scales covering about half the pips, and ending in short, blunt, reflexed points. Flesh pale yellow, almost destitute of fibre, very juicy and sweet with a rich highly flavoured acid. Crown middle sized, leaves numerous and spreading.

Received from Mr. Isaac Oldaker; it is one of a great number of seedlings raised at Blithfield, the seat of the Right Hon. Lord Bagot, and is much superior to any of the numerous new varieties obtained from that source.

13. Downton Havannah Pine.

Syn. Knight's Seedling.

A seedling raised by Mr. Knight. It differs from the Smooth Havannah in nothing whatever except having small spines on the edges of the leaves. The quality, form and colour are precisely the same. Mr. Knight originally called it Knight's Seedling, but the name now proposed serves better to indicate its resemblance to a well known old variety.

14. New Jamaica Pine.

Syn. Black Jamaica. *Speechly*, 2nd Ed. p. 12.
New Black Jamaica. *Hort. Soc. Cat.* No. 43.
St. Kitts. *Hort. Soc. Cat.* No. 73.
New Jamaica, Brown Antigua, English Globe, Montserrat, } *of various English Gardens.*
St. Vincent's Sugar-loaf, M'Rae's St. Vincent's, } *in St. Vincent's.*

This differs from the Black Jamaica in the colour of the leaf, which is rather paler, and in the margins being slightly reflexed. The Fruit is pyramidal and slightly mealy. The Colour black (hence Speechly's name), on approaching maturity changing to that of a dark orange. Pips differ from those of this variety by being half covered with the scales, and rather more prominent and angular. Flesh pale yellow, somewhat opaque, slightly fibrous, sweet and rather acid, very pleasant, rich and high flavoured. Crown middle sized, leaves rather numerous and spreading.

An excellent summer Fruit, but is apt to become deformed during the winter months, it generally weighs from three to four pounds.

15. New Demerara Pine.

Syn. New Demerara. *Hort. Soc. Cat.* No. 27.
Harrison's New, *of some Gardens.*

Leaves strong, very broad and rather long, slightly keel-shaped and spreading, of a dull green colour, and tinged with reddish brown on the upper surface, the lower surface is remarkably mealy, a feature by which it may readily be distinguished. Spines rather minute and regular. Flowers lilac. Fruit globular, depressed at each end, of a dark green colour before ripening; afterwards a dull ochre tinged with red; very mealy on the centre part of the Pips which are large and prominent. Scales covering half the pips and ending in narrow lengthened points. Flesh white and firm, very juicy but not highly flavoured. Crown large, leaves rather long and erect.

Received from Mr. Miller of the Bristol Nursery, but its origin is unknown; it is a weighty fruit but very inferior in point of flavour.

16. Striped Surinam Pine.

Syn. Silvery Striped Pine, from Surinam. *Speechly*, 2nd Ed. p. 15.
Striped Silver and Pink Surinam.
Striped Surinam. } *Hort. Soc. Cat.* No. 92.
Silver Striped. *Hort. Soc. Cat.* No. 66. *Nicol's Gard. Kal.* 4th Ed. p. 304.
Ribbon Grass. *Hort. Soc. Cat.* No. 69.
Prince of Wales' Island. *ib.* No. 55.
Prince of Wales' Island striped. *ib.* No. 55.

This has been described by Speechly to exceed in beauty the whole tribe of variegated Plants, not only in the leaves, which are beautifully striped with dark green and delicate white, tinged with a fiery red: but also in its fruit which is cylindrical and variously marbled with red, green, yellow and white. Pips small, rather prominent and covered to the extent of one third by the Scales, which terminate in narrow sharp points. Flesh dullish yellow, very acid and moderately flavoured. Crown middle sized, of the same character of the leaves.

Although a beautiful this is an exceedingly worthless variety; it is a very shy grower and requires a long time to come to a fruiting state. I have known Plants of it eight or nine years old before

they fruited, and I have been informed on credible authority that at some places so long a period as eighteen or twenty years elapses without the Plant showing the least symptom of such a change.

17. Sierra Leone Pine.

Originally presented to the Society by the late Mr. Chevalier, under the name of Wild Pine of Sierra Leone; and lately by Mr. Whitfield, under the name of Black Antigua.

Leaves long, broad and rather flaccid, with revolute undulated edges, of a clear bluish green, and, from the circumstance of it being a very free grower, often considerably blotched with a darker colour. Spines short, middle sized and regular. Flowers purple. Fruit cylindrical, of a dull green colour tinged with red; when ripe, it gradually changes to a dull ochre colour, thickly covered with meal. Pips rather below the middle size and slightly prominent. Scales covering nearly one half the pips, and terminating in lengthened reddish coloured points; when approaching maturity it gradually changes to a dull ochre colour. Flesh very pale yellow, almost white, tender, abundantly juicy, free from fibre; crisp and melting; sweet without acidity; pleasant though not rich. Crown large and rather sweet, often accompanied by gills at its base, leaves numerous: it is also inclined to emit suckers at the base of the fruit, and those on the stem are inclined to fruit before the other is half matured.

An exceedingly free growing variety and of considerable excellence; from having been so lately introduced we are not aware of its qualities as a winter Pine.

18. Anson's Pine.

Syn. Anson's. } *Hort. Soc. Cat.* No. 2.
Anson's Queen. }
Lemon Antigua. *Hort. Soc. Cat.* No. 7.

Leaves long, rather more slender and erect than in the Otaheite, to which it bears a considerable resemblance, particularly in the spines and in the flatness of the leaves. Flowers purple. Fruit cylindrical, before ripening of a darkish green and rather mealy; when ripe of a bright lemon colour. Pips rather above the middle size, prominent at the margins and depressed in the centre. Scales covering half the pips, and ending in narrow acute points. Flesh white, opaque, entirely without stringiness, very sweet and pleasant, but without acidity. Crown middle sized, leaves not very numerous.

The origin of this Pine was not known to any of the cultivators of that fruit who sent plants of it to the Society; it is probable that it was raised from seed at Shugborough. It generally weighs from three to five pounds, but is not a sort of much excellence.

19. Montserrat Pine.

Syn. Montserrat. } *Hort. Soc. Cat.* No. 48.
Copper. }
Cape Coast. *ib.* No. 17.
Bogwarp. *ib.* No. 14.
Red Ripley. *ib.* No. 72.
New Ripley. *ib.* No. 71.
Copper-coloured Antigua. *ib.* No. 5.
Cochineal. *ib.* No. 21.
Brazil. *ib.* No. 15.
Old King, }
St. Kitts, } *of some Gardens.*
Malacca, }
Sumatra, }
Ananas Antigua rubra, *of the French.*
Indian Creole, }
St. Vincent's Cockscomb, } *in St. Vincent's.*
Chevalier's Sierra Leone, *in Sierra Leone.*

Easily distinguished from all other varieties by the dark purple colour of the spines, which are rather small and irregular; good specimens of it will weigh from three to five pounds. Flowers purple. Fruit cylindrical, sometimes broader at the top and narrowing downwards, before ripening, dark green and mealy, afterwards of a pale orange tinged with a copper colour. Pips middle sized and rather flat. Scales covering one half the pips, of a deep red towards the points, which are rather lengthened. Flesh solid, lemon-coloured, semi-transparent, somewhat mealy, juicy and acid, without much flavour or sweetness. Crown rather large, leaves numerous.

This Pine is pretty generally known in the country under one

or other of the above names, but from the circumstance of its being rather an inferior variety, few collections contain more than a very few plants of it.

20. Trooper's Helmet Pine.

Syn.	Trooper's Helmet.	} *Hort. Soc. Cat.*	No. 93.
	Cockscomb.		
	Hussar.	*ib.*	No. 40.
	Broad leaved Java.	*ib.*	No. 44.

Leaves rather long, flat and erect, of a pale yellowish green colour, and mealy on the under surface. Spines middle sized and regular. Flowers purple. Fruit orbicularly cylindrical, before ripening pale green and rather mealy, when ripe dark ochre. Pips large, flat, depressed in the centre and plaited round the margins. Scales covering half the pips, of a whitish colour, and terminating in lengthened blunt points. Flesh bright lemon colour, very juicy and high flavoured without sweetness or briskness, rather of a coarse and stringy nature. Crown large and spreading, leaves numerous.

This is a fruit of great beauty but not of particular excellence, generally weighing from three to five pounds; the scales being whitish, and the margins of the pips plaited, cause it to have a novel appearance.

We have received it from Java, under the name of Java Broad-leaved and Java Narrow-leaved, and also from St. Vincent's.

21. Green Providence Pine.

Syn.	Green Providence.	*Hort. Soc. Cat.*	No. 56.
	Wollaton Providence.	*ib.*	No. 58.
	Wollaton Green Providence.	*ib.*	No. 58.
	New Green Olive.	*ib.*	No. 50.
	Green Antigua,	} *of some Gardens.*	
	Royal Green Providence,		
	Royal Providence,		

The leaves of this sort are very distinct from all others; they are long, very broad, slightly spreading and keel-shaped at the base, tapering to a lengthened point, the upper surface is dull green with scarcely any meal, the lower surface is very mealy. Spines

middle sized and regular. Flowers purple. Fruit pyramidal, broadish at the top, before ripening of a dark green, when ripe of a pale orange, slightly mealy. Pips rather above the middle size and slightly prominent. Scales covering one half the pips, with long narrow pointed ends. Flesh pale yellow, opaque, slightly fibrous, sweet and pleasant without much acid. Crown small, leaves not very numerous.

This variety was obtained from seed at Wollaton, the seat of Lord MIDDLETON, it generally weighs from three to six pounds and is of considerable excellence as a summer fruit.

22. ST. VINCENT'S PINE.

SYN. St. Vincent's. *Speechly*, 2nd Ed. p. 9.
Green St. Vincent's. } *Hort. Soc. Cat.* No. 75.
Green Olive. }
St. Thomas's. *ibid.* No. 74.
Green Providence, } *of some English Gardens.*
Stubton Seedling, }
Sugar-loaf Bahama, }

This has been described by SPEECHLY to have leaves of the "same length as the Queen;" if well grown they will be found to be much longer, and differ only from the Green Providence in being narrower, less keel-shaped, and the upper surface paler green and rather more mealy. Flowers purple, middle-sized. Fruit bluntly pyramidal, slightly mealy and of a dull olive colour, when ripe of a dingy yellow. Pips middle-sized, flat, and rather depressed in the centre. Scales covering nearly half the pips; the tops are short and adhere closely to the fruit, which gives it rather an even appearance. Flesh pale yellow, opaque, juicy, crisp, without much fibre, rich, sweet, and very highly flavoured. Crown middle-sized, leaves rather numerous and slightly spreading.

This bears a small fruit, generally weighing from two to four pounds, but from its being a highly flavoured variety, a few plants of it will readily be admitted into every collection; it swells readily during the winter months.

23. Globe Pine.

Syn. Globe.
English Globe. } *Hort. Soc. Cat.* No. 33.

This sort is readily distinguished by the rigid and erect character of its leaves, which are rather narrow and slightly keeled, a bluish green and very mealy, especially on the under surface. Spines middle-sized and regular. Flowers lilac. Fruit globular, sometimes rather cylindrical, of a dark olive colour before ripening, afterwards of a darkish yellow, slightly mealy. Pips middle-sized, very slightly prominent. Scales covering about one third the pips, and terminating in rather lengthened points. Flesh yellow, transparent, very juicy and slightly fibrous, sweet, rich and rather acid. Crown small, leaves not numerous.

A good variety, and valuable as occupying less room in the stove than any other sort by reason of its erect leaves. It generally weighs from three to five pounds, but does not swell very readily during winter.

24. Lemon Queen Pine.

Syn. Lemon Queen.
Lemon coloured Barbadoes. } *Hort. Soc. Cat.* No. 64.
Barbadoes Queen.
White Barbadoes. *ib.* No. 12.
Ripley's new Queen, *of some Gardens.*

This tolerably good and handsome variety, is easily distinguished by its leaves, which are grooved or channeled, and the margins often involute, of a bluish green colour, with a considerable quantity of mealiness. Spines rather deep and irregular. Flowers large. Fruit cylindrical, before ripening of a bright lightish green, when ripe pale lemon-colour, and slightly mealy. Pips rather above the middle-size and flat. Scales covering about one half the pips, ending in short points which adhere closely to the fruit. Flesh pale yellow, transparent, very juicy, a little stringy, rather sweet and pleasant, although not very highly flavoured. Crown middle size, often cockscomb-shaped; generally weighing from three to five pounds; does not swell very readily during winter.

25. Otaheite Pine.

Syn. Otaheite.
Anson's. } *Hort. Soc. Cat.* No. 52.

Leaves long, rather broad and of erect growth, nearly equal in breadth until near the top where they terminate rather acutely; they are also particularly flat, and of a dark bluish green slightly tinged with brown, and a little mealy on the upper surface, very mealy on the lower surface. Spines middle-sized and remarkably irregular. Flowers lilac. Fruit cylindrical inclining to oval, upon ripening deep olive green covered densely with a cinereous meal, when ripe deep orange yellow. Pips large and flat. Scales covering rather more than one third the pips and ending in short points, which adhere closely to the pips. Flesh pale yellow, rather stringy and slightly acid, with an abundance of juice, but not particularly well flavoured. Crown small, leaves rather few and erect.

This large free-growing and very handsome Pine, generally weighing from four to seven pounds, and where large and handsome fruit are in request, in preference to highly flavoured ones, this will undoubtedly continue to be cultivated, but in small and select collections it is scarcely worth having.

26. Surinam Pine.

Syn. Surinam. *Hort. Soc. Cat.* No. 91.

Leaves rather narrow, long and slightly spreading, of a bluish green colour, a little tinged and slightly covered with mealiness. Spines rather deep and not very regular. Flowers lilac. Fruit cylindrical, of a dull green before ripening, when ripe a deep orange and rather mealy. Pips roundish, middle-sized, projecting and pointed. Scales covering about one third part of the pips, and ending in lengthened reflexed points. Flesh pale yellow, transparent, rather stringy and very juicy, but neither sweet, rich nor acid.

A very distinct, but inferior sort, generally weighing from two to four pounds.

27. Buck's Seedling Globe Pine.

Leaves long, rather narrow, somewhat keel-shaped and spreading, of a bluish green, slightly tinged with brownish purple and thickly covered with meal. Spines not very strong but very irregular. Flowers darkish lilac. Fruit cylindrical, somewhat inclining to a globular form, before ripening of a dingy dull green and a little mealy, when ripe darkish orange. Pips somewhat below the middle-size and a little prominent. Scales covering

about half the pips, and ending in lengthened narrow points. Flesh pale yellow, rather close, firm and juicy, with a rich, highly flavoured acid. Crown small, leaves broad, short and reflexed.

This very excellent and distinct variety, was sent to the Society by Mr. William Buck, Gardener to the Hon. F. Greville Howard, at Elford, in Staffordshire, where it was raised from seeds in 1819. It fruited in the Garden last summer and weighed nearly five pounds.

28. Brown-leaved Sugar-loaf Pine.

Syn. Brown-leaved Sugar-loaf. } *Hort. Soc. Cat.* No. 81.
Striped brown Sugar-loaf. }
Mocho. *ib.* No. 47.
Brown Sugar-loaf, }
Antigua Sugar-loaf, } *of some Gardens.*

Leaves rather strong, broad, somewhat keel-shaped, and slightly spreading, dark green, much tinged with purplish brown, rather mealy. Spines middle-sized and regular. Flowers lilac. Fruit cylindrical, of a dingy green and considerably covered with mealiness before ripening; when ripe dark yellow inclining to orange. Pips large, slightly prominent. Scales covering nearly one half the pips, and ending in short blunt points. Flesh deep yellow, rather opaque and slightly fibrous, not very juicy but highly flavoured and particularly sweet and rich. Crown middle-sized, leaves rather numerous and spreading.

This is an excellent variety well calculated for general culture. Although differing materially from the other varieties of Sugar-loaf in the shape of the fruit, yet it has been thought advisable to retain its name; its origin is unknown. Good specimens will weigh from three to five pounds.

It must not be confounded with the next sort.

29. Brown Sugar-loaf Pine.

Syn. Brown Sugar-loaf. *Speechly*, 2nd Ed. p. 10.

The leaves of this variety are different from all the other Sugar-loaves; in appearance they much resemble the Enville, but are less mealy and more tinged with brownish red;

the fruit also bears a striking resemblance to that of an Enville, but is nearly destitute of mealiness. Flesh is rather firm, deep yellow, opaque, without much fibre, very juicy, rich and highly flavoured, with a little acidity. Crown resembles that of an Enville.

I am inclined to think that this is the Sugar-loaf of SPEECHLY. The Brown-leaved Sugar-loaf does not agree with SPEECHLY's description, inasmuch as that fruit is cylindrical; and his is described to be pyramidal.

A very good and handsome Pine, generally weighing from three to five pounds, and swelling readily during the winter months.

30. MEALY-LEAVED SUGAR-LOAF PINE.

SYN. Mealy-leaved Sugar-loaf.	*Hort. Soc. Cat.*	No. 84.
White Sugar-loaf.	*ib.*	No. 90.
Dominica.	*ib.*	No. 28.
New Mealy-leaved Sugar-loaf.	*ib.*	No. 85.
Allen's Seedling.	*ib.*	No. 1.
Green Sugar-loaf, Anson's, Otaheite, Brown Sugar-loaf,	*of some Gardens.*	

Flowers lilac. Fruit pyramidal, of a lurid green and slightly mealy, when ripe of a pale yellow inclining to lemon-colour. Pips rather below the middle size; flattish scales covering rather more than one third of the pips, and ending in lengthened acute points. Flesh very pale yellow, almost white, transparent, rather soft and fibrous, sweetish without acid, slightly aromatic, not very pleasant. Crown small, leaves rather numerous.

This is readily distinguished from all other varieties by its leaves being channeled or grooved like those of the Lemon Queen, but in a less degree than that variety; it also differs in being less mealy, and tinged with dull brown; it is not described by SPEECHLY, but appears to have been cultivated for a considerable time.

Good specimens will weigh from three to four pounds, but it is only an inferior sort, and not worth cultivating to any extent.

31. Black Sugar-loaf Pine.

Syn. Black Sugar-loaf. *Hort. Soc. Cat.* No. 80.
Copper-coloured Barbadoes. *ib.* No. 25.

The fruit is of the same form as the other varieties of Sugar-loaf, the colour is darkish purple, and slightly mealy before ripening; when ripe light orange. Pips rather above the middle size and flat, sometimes a little depressed in the centre, and covered to the extent of one third by the scales, which end in a very short blunt point. Flesh very pale lemon-colour, rather stringy, very juicy, and sweet with an agreeable pleasant acid. Crown rather large, leaves few and erect.

This is readily distinguished from all other varieties of the Pine Apple, by the purple colour of its leaves, which are long and erect; it is tolerably good during summer but does not swell freely in winter.

32. Striped-leaved Sugar-loaf Pine.

Syn. Striped Sugar-loaf. *Brookshaw's Pom. Brit.* t. 46.
Prickly striped Sugar-loaf. *Nicol's Gard. Kal.* 4th Ed. p. 304.
Green-leaved with purple stripes and spines on the edges. *Speechly*, 2nd Ed. p, 10.
Purple Striped Queen. *Hort. Soc. Cat.* No. 88.
Green Sugar-loaf. *ib.* No. 82.
Green striped Sugar-loaf. *ib.* No. 83.
White Sugar-loaf,
Striped-leaved, from Jamaica,
Bird's Eye Bahama,
Brown striped Sugar-loaf, } *of some Gardens.*

Flowers very pale lilac. Fruit of the same form as the other Sugar-loaves, of a clear palish green colour and rather mealy; when ripe of a bright yellow. Flesh deep yellow, semi-transparent, slightly stringy, very juicy and sweet with a slight aroma, but without much acidity. Crown middle-sized, leaves rather numerous.

It is readily distinguished by its broad pale green leaves, with dark purple stripes; it generally weighs from three to four pounds, and is a fruit of considerable excellence.

It has been received from Jamaica by Sir Simon Houghton Clarke, Bart. under the erroneous name of Ripley.

33. Trinidad Pine Apple.

Syn. Pitch Lake, *of some.*

Leaves keel-shaped, very long and straggling, broad at the base, and tapering regularly to the apex, dull green much tinged with brownish purple, particularly on the spines and inner leaves, under surface very mealy. Spines remarkably irregular and growing in clusters, they are in the middle degree of strength and thickly set. Flowers lilac. Fruit of an elongated conical form, the greatest diameters of which are in the proportion of 12½ inches in height, by 5½ inches in breadth; before ripening dark olive and lightly covered with meal, when ripe dark orange, and slightly tinged with red on the lower part of the pips, which are large, of a roundish form, and only very slightly angular; the margins are rather elevated, with their centres depressed, excepting the lower part of the fruit where they are a little prominent. Scales cover about half the pips, and end in lengthened acute points at the lower part of the fruit, but near the summit they are much shorter. Flesh pale yellow, soft, with little fibre, very fragrant and sweet without acidity, very delicate and highly flavoured. Crown very small, contributing, in continuation from the fruit, to give the whole the sharp termination of a regular cone. The leaves are reflexed and considerably tinged with reddish brown.

This excellent and truly valuable Pine was presented to the Society by His Excellency the late Sir Ralph Woodford, the then Governor of Trinidad, where it attains an immense size: the largest of those fruited in our Garden weighed six pounds, but it is reported to weigh occasionally twenty-six.

34. Buck's Seedling Pine.

This variety greatly resembles the Trinidad, but differs in the following particulars. The leaves are not of so robust growth, they are considerably paler, more mealy, and intirely free from any tinge of brown or red, nor are the spines so strong or irregular. The fruit before ripening is rather paler and more mealy, the scales much longer and of a dull whitish or grey colour. The flesh is also somewhat paler, with a richer and more highly flavoured juice.

Raised from seed at Elford, and presented to the Society by Mr. William Buck.

35. Enville Pine.

Syn. Enville. } *Hort. Soc. Cat.* No. 30.
Old Enville. }
Cockscomb. }
Enville Sugar-loaf. *ib.* No. 32.

Leaves not very long, but rather broad and strong, slightly keel-shaped, somewhat recurved, of a bluish green and remarkably mealy, spines middle sized, thickly set and very irregular. Flowers lilac. Fruit pyramidal, of a dark purple tinged with a brownish red before ripening and very mealy, afterwards of a deep reddish yellow, with pale copper coloured scales which cover about one third of the pips, and terminate in lengthened acute points. Pips generally about the middle size and slightly prominent. Flesh almost white, opaque, soft and melting, without much fibre, juicy, rather rich and sweet with a peculiar and pleasant perfume. Crown small, often cockscomb shaped.

This is a very good and handsome Pine, weighing from four to seven pounds, and swelling freely during winter months; it was raised from seed at Enville Hall, the seat of the Earl of Stamford and Warrington, but at what time is rather uncertain.

36. New Enville Pine.

Syn. New Enville. *Hort. Soc. Cat.* No. 31.

The leaves of this variety differ from the Enville in being less mealy, the spines are also stronger and more regular. The fruit is not only of the same appearance, but also of the same quality as the Enville. It was first introduced into notice by Mr. Miller of the Bristol Nursery; but its origin is unknown.

37. Spring Grove Enville Pine.

Leaves, short, broad and flat, with revolute edges of a bluish green colour, much tinged with brownish purple and rather thickly covered with meal. Spines middle sized, rather thickly set and regular. Flowers lilac. Fruit pyramidal, very broad at its base; before ripening dark green and rather mealy, when ripe dark yellow. Pips middle sized, rather flat and somewhat depressed in the centres. Scales covering rather more than half the pips and terminating in very short points. Flesh very pale yellow, slightly fibrous, very juicy and rather sweet, but not highly flavoured. Crown very small, leaves not numerous.

This Pine was presented to the Society, by Mr. Isaac Oldaker. The fruit weighs from three to four pounds, but is not of much excellence.

38. Lord Bagot's Seedling Pine.

Syn. Lord Bagot's Seedling. *Hort. Soc. Cat.* No. 10.

Leaves remarkably short, broad and flat, bluish green and thickly covered with meal. Spines middle sized and rather irregular. Flowers lilac. Fruit bluntly pyramidal, before ripening dark greenish purple and thickly covered with meal; when ripe pale yellow. Flesh white, opaque and firm, with scarcely any fibre, very juicy and highly flavoured. Crown small, leaves not numerous.

39. Blithfield Orange Pine.

The leaves of this variety bear a striking resemblance to those of the Enville, but differ in being much weaker and less mealy. The fruit is rather broader at the top than in that variety; the pips are also somewhat larger and less mealy, the colour when ripe bright ochre. Flesh pale yellow, rather soft and melting with a pleasant highly flavoured juice. Crown small, leaves not numerous.

Presented to the Society with the last, by Mr. Isaac Oldaker.

40. Black Antigua Pine.

Syn. Brown Antigua. *Speechly*, 2nd Ed. p. 5.
Black Antigua. *Nicol's Gard. Kal.* 4th Ed. p. 304.
Jagged-leaf Black Antigua. *Brookshaw's Pom. Brit.*
Brown Antigua. *Hort. Soc. Cat.* No. 4.
Wortley's West Indian, *of some Gardens.*

It is readily distinguished by its leaves, which are very long, narrow and acute, rather spreading, of a clear bluish green, the inner leaves being much tinged with a pale brown, upper surface slightly mealy, lower surface very mealy. Spines large, far apart and regular. Flowers purple. Fruit cylindrical, inclining to oval; before ripening of a dull purple green and thickly covered with meal, when ripe dark ochre. Pips very large and prominent. Scales covering rather more than one third of the pips, and terminating in short blunt points. Flesh pale yellow, slightly fibrous, rather soft and melting, with a pleasant acid, remarkably juicy, sweet and highly flavoured. Crown small, leaves few and erect.

This truly valuable and excellent Pine-Apple was cultivated by Speechly at Welbeck, before the publication of his Treatise; during summer it is the most delicious and highly flavoured fruit with which I am acquainted, and as Speechly very justly observes, it should be cut on the first appearance of changing from green to yellow, an observation which is applicable to all those sorts abounding with juice. We have received it both from St. Vincent and Maranhao.

41. Welbeck Seedling Pine.

Syn. Welbeck Seedling. *Hort. Soc. Trans.* Vol. IV. p. 213.
Crown. *Hort. Soc. Cat.* No. 26.
Prickly Providence, *of some Gardens.*

This sort is readily distinguished from all others by its leaves, which are long, slender and spreading; broad at the base and tapering to a very acute point; of a dull green and only slightly mealy. Spines large, far asunder and regular. Flowers small, dark purple. Fruit somewhat cylindrical, generally broader at the top than at the base, before ripening dark olive; when ripe pale lemon-colour; very mealy on the centre of the pips, which are large, flat, rather wrinkled and depressed in the centre. Scales covering nearly half the pips, ending in short blunt points. The flesh is very pale yellow almost white, semitransparent, melting and juicy, slightly acid, with a rich agreeable flavour. Crown rather large, sometimes cockscomb shaped, leaves not very numerous.

A notice of this variety has been made in the Hort. Trans. vol. iv. p. 213, where it is stated to be "a small fruit," this however is only very seldom the case; under favourable circumstances it will be found to be a free grower, producing fruit of great beauty, somewhat above the middle size of Pine-Apples; and of sufficient excellence to obtain it a place in every good collection: its name is sufficient to satisfy us respecting its origin, when we consider the great quantity of seedling Pine-Apples raised from imported seeds at Welbeck by Mr. Speechly.

42. Ripley Pine.

Syn. Ripley. *Brookshaw's Pom. Brit.* pl. 41.
Old Ripley. *Hort. Soc. Cat.* No. 70.
Montserrat. *Nicol's Gard. Kal.* 4th Ed. p. 304.
Heaton House Montserrat. *Hort. Soc. Cat.* No. 49.
Brown Sugar-loaf, *of some Gardens.*
Indian Black Pine. *St. Vincent.*

Leaves broad, rather long, and slightly recurved, dark green, much tinged with reddish brown, and mealy on both surfaces. Spines in the middle degree of strength and irregular; margins reflexed and sometimes a little waved. Flowers purple. Fruit roundish ovate, sometimes rather cylindrical, slightly compressed at either end; before ripening very deep green, and thickly covered with meal on the middle part of the pips, when ripe of a pale copper colour. Pips rather above the middle size and rather prominent, scales covering about one half the pips and terminating in lengthened acute points. Flesh pale yellow, opaque, very sweet and rich, firm and crisp not stringy; and of a very agreeable flavour. Crown about the middle size, leaves rather numerous and spreading.

This Pine is readily distinguished from all others by reason of its being densely covered with meal on the centre of the pips: it generally weighs from three to five pounds, and is an excellent sort for winter forcing, and well deserving of general cultivation.

43. Russian Globe Pine.

Syn. Russian Globe. *Hort. Trans.* Vol. V. p. 265.

Leaves rather short and broad, somewhat keel-shaped, spreading and a little furrowed; of a dull green, much tinged with a dark brown, slightly mealy. Spines long, thinly set and regular. Flowers lilac. Fruit globular, sometimes tapering to the summit, before ripening dark purplish green and thickly covered with meal, when ripe darkish orange, inclining to a copper colour. Pips large, flat and a little depressed in the centre. Scales covering about one third of the pips, which end in long acute points, closely adhering to the fruit. Flesh of a clear yellow, slightly fibrous, very juicy and sweet, with a rich highly perfumed flavour. Crown rather large, leaves broad and spreading.

This is an excellent and highly flavoured fruit, generally weighing from three to five pounds. It was imported from St. Petersburg by the Society in1819.

44. Russian Cockscomb Pine.

Syn. Russian Cockscomb. *Hort. Soc. Cat.* No. 23.

Leaves rather strong, broad, short and somewhat furrowed, slightly spreading and rather flat, with revoluted margins of a bluish green and very lightly tinged with brown, very mealy. Spines rather strong, far asunder and regular. Flowers lilac. Fruit globular, rather tapering to the summit; before ripening of a dark green and rather mealy, when ripe pale orange. Pips rather above the middle-size and flat; sometimes having small tubercles at some of the angles. Scales covering nearly one half the pips, ending in long blunt points which adhere closely to the fruit. Flesh pale yellow, rather transparent, very juicy and sweet, with a rich pleasant acid. Crown rather small, leaves broad and spreading.

This Pine was presented to the Society by Mr. Isaac Oldaker. It is an excellent summer fruit, weighing from four to six pounds.

45. Queen Pine.

Syn. Queen. *Speechly*, 2nd Ed. p. 4.
Old Queen.
Common Queen. } *Hort. Soc. Cat.* No. 59.
Narrow leaved Queen.
Broad leaved Queen. *ib.* No. 61.
Ananas Ordinaire, *of the French.*

Leaves very short, broad and stiff, somewhat spreading and keel-shaped, of a bluish green and thickly covered with meal. Spines strong, rather far apart and regular. Flowers lilac. Fruit cylindrical, before ripening a lightish green and mealy; when ripe a rich deep yellow. Pips rather below the middle-size and a little prominent. Scales covering rather more than one third the pips, ending in lengthened points. Flesh pale yellow, very slightly fibrous and melting, remarkably juicy and sweet, with a rich pleasant acid. Crown middle-sized, leaves numerous and a little spreading.

The origin of this truly valuable and excellent Pine is uncertain; it is the Ananas Ovale of Miller's Dictionary, and probably the sort

originally introduced into this country; in ordinary cultivation it comes into fruit in fifteen or eighteen months after having been removed from the stool, and will then weigh from three to five pounds.

46. Ripley's Queen Pine.

Syn. Ripley's Queen. *Hort. Soc. Cat.* No. 67.
Ripley's New Queen. *M'Intosh's Pract. Gard.* Part VII. p. 503.

This sort differs from the Queen in the leaves being less mealy and of a paler colour, the pips are also less prominent. It is a more tender variety than the Queen, over which it possesses no advantage: we are not acquainted with its origin.

47. Green Queen Pine.

Syn. Green Queen. *Hort. Soc. Cat.* No. 63.

The leaves of this variety differ from the two described above, in their being much stronger, rather less mealy, and often having some parts of their margins destitute of spines. The fruit is generally larger, and the pips are rather more prominent than either of the other varieties of Queen, but they seem to be equal in point of flavour. It was first introduced into notice by Mr. Miller of the Bristol Nursery, but its origin is unknown.

48. Moscow Queen Pine.

Syn. Moscow Queen. *Hort. Soc. Cat.* No. 65.

The leaves of this sort differ from the other varieties of Queen in being furrowed and in the veins on the under surface being entirely destitute of mealiness, thereby causing it to have a striped appearance. It is an excellent and highly flavoured fruit, of the same size as the Queen. Received from Mr. Isaac Oldaker.

49. STRIPED QUEEN PINE.

SYN. Striped Queen. *Hort. Soc. Cat.* No. 68.
Striped-leaved Olive. *ib.* No. 51.

According to SPEECHLY this is an accidental variety obtained from the Queen at Welbeck, about twenty years before the publication of his treatise. It differs from the Queen in its leaves being striped with a pale greenish yellow and a little tinged with fiery red, the fruit is also a little variegated, and of the same quality as the Queen, but seldom swells so freely as that variety.

50. SILVER-STRIPED QUEEN PINE.

SYN. Gold striped. *Speechly*, 2nd Ed. p. 16.
Silver striped Queen. *Hort. Soc. Cat.* No. 66.
Silver Striped. *ib.* No. 77.

The leaves of this variety differ from the Striped Queen in the margins being striped, whilst those of the Striped Queen are uniformly green; they are also broader, less tinged with red and the stripes considerably paler than that variety. Although both plant and fruit are of greater beauty, yet they are of much less excellence.

51. ANTIGUA QUEEN PINE.

SYN. Antigua Queen. *Speechly*, 2nd Ed. p. 6.
Black Caraile. *Hort. Soc. Cat.* No. 18.
Yellow Caraile. *ib.* No. 19.
Lord Effingham's, Antigua, } *of some Gardens.*

Leaves short, broad, keel-shaped and slightly spreading, dull green and very much tinged with lightish brown and very mealy on the under surface. Spines strong, far asunder and regular. Flowers dark lilac. Fruit cylindrical, sometimes roundish; before ripening dark olive green and rather mealy, when ripe dull yellow. Pips rather above the middle-size, prominent. Scales covering about one third part of the pips and ending in a short blunt point. Flesh white, firm, remarkably juicy, a little sugary but not highly flavoured. Crown rather large, leaves numerous and spreading.

We have received it from St. Vincent under the names of Indian Sugar-loaf, and Herbert's Narrow-leaved St. Vincent. It is an extremely worthless variety, being almost always deformed.

There is a variety of this sort with deep yellow flesh which far surpasses the one now described in point of flavour, and the fruit is not so liable to become deformed as that of the old variety which is seldom otherwise than mis-shaped: the leaves are also broader, more spreading, and the spines rather coarser.

52. Blood Red Pine.

Syn. Blood Red.
Blood.
Claret.
} *Hort. Soc. Cat.* No. 13.

Ananas Jamaica purpurea, *of the French.*

This Pine is readily distinguished by the purplish red colour of its leaves, which are long, broad, and rather erect. The spines are large and regular. Flowers lilac. Fruit cylindrical, sometimes tapering a little to the summit; before ripening dark purple and very mealy, when ripe a reddish chocolate colour. Pips middle-sized, slightly prominent and half covered with the scales which terminate abruptly in very short points. Flesh white, rather soft and melting, somewhat fibrous, neither very juicy nor highly flavoured. Crown middle-sized, leaves rather numerous and erect.

It was imported from Jamaica by the late Major Morrison of Gunnersbury, under the name of Buck Pine, and unnamed plants of it were also received from St. Vincent by the Society.

It is not of such excellence as to warrant the introduction of more than a very few plants in any collection.

Of the above varieties the following will probably be found the most useful in a very select collection.

The Queen (No. 45, p. 29.) is one of the best varieties at present known for general cultivation. It grows freely, fruits early, and although not so high flavoured as some of the larger kinds is still the most valuable for a small family. Exposed to a very

high temperature in the months of June, July and August, it is liable to become hollow near the core, but early or later in the season it is not subject to that defect. It is the sort generally grown by gardeners for the London Market. The *Ripley's Queen*, (No. 46, p. 30,) a slight variety of the common Queen, is probably the best; the leaves are greener and broader, and it does not throw up so many suckers.

The Moscow Queen (No. 48, p. 30.) is an excellent variety but is rather a slow grower; the fruit is about the same size as the common Queen, but superior to it in flavour.

The Black Jamaica (No. 11, p. 11.) is an excellent fruit at all seasons of the year, but particularly in the winter months, when Pines rarely come to perfection; it cuts firm to the core, is highly flavoured, keeps some time after it is fully ripe, and bears carriage better than any other. It is however rather a slow grower, and the fruit seldom attains a large size.

The Brown Sugar-loaf (No. 29, p. 21.) is the best of the Sugar-loaf kind; it is a large handsome and highly flavoured fruit, swells freely in the winter months, its flesh is firm and juicy.

The Ripley (No. 42, p 28.) is large, handsome and high flavoured; it is a good summer fruit, and swells freely in winter.

The St. Vincent. (No. 22, p. 18.) The fruit is not large but highly flavoured, particularly in summer; and it is said to swell freely in winter.

The Black Antigua (No. 40, p. 28.) is an excellent and highly flavoured Pine if cut when it begins to turn from green to yellow, but if allowed to remain on the plant until it is quite ripe it loses all its richness.

The Enville (No. 35, p. 25.) is deserving of a place in collections as one of the handsomest Pines in cultivation; although it is neither rich nor highly flavoured.

The Lemon Queen (No. 24, p. 19.) is of free growth, the fruit is rich, juicy and high flavoured.

The White Providence, (No. 10, p. 9.) when grown to a large size, is generally deficient in flavour, but is a very handsome showy kind. It may sometimes bear prematurely, and if in that case the fruit be allowed to become perfectly ripe on the plant it is equal in flavour to a Queen.

II. *An Account of an economical Method of obtaining very Early Crops of New Potatoes.* *By* Thomas Andrew Knight, *Esq. F.R.S. &c. President.*

Read May 4, 1830.

I communicate the following account of a method of raising very early crops of Potatoes, which I have practised during the last two years, and which will, I believe, be found to point out the means of obtaining that vegetable at much less expence than by any other now practised, and in a state of great perfection.

It is well known to every Gardener, that Potatoes, which have been buried sufficiently deep in the soil to render them secure from injury by frost, usually vegetate very strongly in the succeeding spring; and I was thence led to hope that by planting in September large tubers, which had ripened early in the preceding summer, and had by a period of rest become excitable, I should be able to cause roots and stems to be emitted, to some extent, in the autumn; and that these, by being well defended from frost, through winter, might operate so as to afford me a very early produce. The experiment was not successful. The tubers vegetated almost immediately, and the stems just reached the surface of the ground, when they were destroyed by frost; and although the ground was immediately so well covered as securely to exclude frost from it, not a single plant appeared in the following spring. I therefore concluded that the experiment had totally failed, and that the tubers planted, after once vegetating, had perished.

Late in the following summer, however, I observed that a very large number of rather strong Potatoe plants rose through the soil,

precisely where I had deposited the large tubers in the preceding autumn; and the appearance of these perfectly satisfied me, that I had erred in supposing those to have perished. The experiment was therefore repeated in the autumn of 1828; and the result in the succeeding spring was the same, not a single plant appearing above the soil; but upon examination I found beneath it, in June, a very abundant crop of excellent young Potatoes, which attained maturity at least a month earlier than those raised at the same time, in the same soil and situation, in the usual way. It now became obvious, that a similar crop of young Potatoes had been produced in the preceding year; and that these, having remained at rest till late in the summer, had become excitable, and had produced the numerous plants abovementioned. The tubers planted were of the largest size which I could obtain of the variety, the ash-leaved kidney Potatoe.

Similar experiments were made in the last autumn; but the temperature of the ground was so low, owing to the excessive coldness of the preceeding summer, that not a single tuber vegetated. A part were therefore taken up, and made to vegetate by means of artificial heat, till they had emitted stems about three inches long, when they were taken from the soil, and the further progress of vegetation arrested. In the middle of January these were put into a pot with some barren sandy soil, and placed in the pine-stove, and supplied, moderately, with water till the middle of March. At that period I discovered that small New Potatoes had been abundantly generated, and water was not subsequently given, till the middle of April; when I found the pot to contain very well grown young Potatoes, which were without any other defect than that of not being, to my taste, sufficiently mature. The requisite degree of artificial heat to insure success in experiments similar to the preceding, may of course, be obtained from a variety of different sources, which I need not point out; and not improbably, I

think, by means of a temperate hot-bed, the surface of the mould of which might be applied to other purposes; but I should prefer clean and barren sand for the tubers to be placed in, as those could not receive early benefit from a rich soil, and their produce might be injured in quality.

The largest crops of early Potatoes will usually be obtained from tubers, which have ripened late, and somewhat imperfectly, in the preceding year; but it is quite essential to the success of the preceding experiment, that the tubers which are planted in autumn, should have ripened early in the foregoing summer; for otherwise they will not be found sufficiently excitable in autumn. It is also necessary that they should be of large size, otherwise the young potatoes which they afford will be small; and it will be advantageous, if the tubers to be planted have been detached from their parent plants upon their having just attained their full growth.

I believe, but I am not prepared to speak upon the evidence of experiment, that the best and the most economical mode of treating the old tubers, after their progress of vegetation has been arrested by cold, will be to put them into such heaps as are usually seen in the gardens of cottagers, and to cover them with mould; as a very large quantity would occupy only a small space, and their produce would there probably acquire a more early maturity, and might be collected at any time with little trouble.

A writer, in Mr. Loudon's Gardener's Magazine, has recommended the exposure of such potatoes as are intended for planting to the sun as soon as they acquire their full growth, till they attain a green colour; and I am inclined to think the process may prove in some degree advantageous, for the action of the sun and air certainly causes chemical changes to take place in their component parts; and chemical changes are the precursors and concomitants of excitability, if not the cause and source of it. I am also inclined to think that similar treatment would be beneficial in the culture

of all those varieties of the Potatoe, which do not naturally vegetate till late in the spring.

I am not prepared to say what weight of New Potatoes may be obtained from any given weight of old; but I have reason to think that the young will be equal to the weight of one third at least of the old; and (as I have shewn in a communication two years ago*) that more than thirty-five thousand pounds of our best and earliest variety of Potatoe, now cultivated, may be obtained from an acre of ground, the mode of culture recommended will not be found expensive, (where artificial heat is not employed) comparatively with the usual price of New Potatoes early in the season. Hogs if hungry will eat the old tubers, when the young have been taken away; but those probably contain little nutriment, and their value therefore may not be worth calculating.

Two early varieties only of Potatoe have been the subjects of the above stated experiments: but there does not appear any reason to doubt that similar success may be obtained with all other early kinds.

* Hort. Trans. 1st Series, Vol. VII. p. 407-8.

III. *On raising Apple Trees from Pips. In a Letter to the Secretary. By the Rev.* James Venables, *C. M. H. S.*

Read December 1, 1829.

Sir,

In the works I have met with on Horticulture, I have never found a satisfactory reason, why the Pips of our best Apples should produce most frequently trees little better than a crab, while other products of our gardens in no degree deteriorate from the parent stock. It is the general effect of cultivation to improve the natural qualities of trees and vegetables, but no advantages of care and management, or of soil and manure, as hitherto applied, have been able to secure our seedling fruit-trees from degenerating. I will venture to offer a few conjectures on this anomaly in the usual process of nature, which may possibly turn the attention of some of the able physiologists of your Society, to the subject; and lead to results beneficial to the science we have associated to advance.

Though fruits and vegetables of the most opposite taste and flavour, will grow in the same soil, yet it is certain that among the infinite varieties of soil, one might be found, if we were able to make the selection, most congenial and appropriate to each particular class of plants, and in which each class will come to its greatest perfection. Now, if the proper adaptation of soil contributes to the improvement of fruit-trees, in the more advanced periods of their growth, it must have a still more important effect at the first germination of the seed. It would seem that much of the peculiar flavour of fruit depends upon the leaf, and whatever determines the first organization of this member of the tree, must

have considerable influence on its produce. In the growth of grain, the most important product of the earth, nature appears to have provided with particular care that the plant in striking its first roots, and developing its first leaves, shall meet with that appropriate nutriment which probably fixes and determines its future habits and quality. In malting it has been observed, that as soon as the barley begins to germinate, the farina of the grain is converted into a substance approaching very nearly to sugar, and this saccharine material affords the first nourishment to the growing plant, and supports it till the radicles spread, and are enabled to draw a supply of aliment from the earth. In the pea and the bean, nature has provided a still ampler supply of saccharine food for the embryo plant, nor is it left to the watery juices of the soil, till the first leaves are developed and fitted to derive a supply of oxygen from the atmosphere. The Apple Pip contains the germ of a plant of larger growth, intended to supply man with a rich and highly flavoured fruit. Yet how little does it contain of this saccharine pabulum for the future tree. If we observe the course of nature in her operations, we may easily discover the source from which this deficiency is to be supplied. It was evidently intended, that the apple itself, decaying on the ground, and enriching the soil around the pips with its saccharine juices, should supply the young tree with its earliest nutriment. When, therefore, we separate the Pips from the Apple, for the purpose of sowing, we deprive the seedling of a material part of its appropriate nourishment, and raise a tree in no way resembling the qualities of its parent.

We have no account of the manner in which the old Golden Pippin, the Nonpareil, and the best Apples of former times were raised. In the XVIth and XVIIth Centuries there were, no doubt, excellent practical gardeners, though few perhaps whom we should consider as scientific horticulturists: and possibly the best fruits of those days may have been a selection from numbers raised, of an

inferior quality. I think it probable, however, that we owe some of our best fruits more to the undisturbed production of nature, than to the operations of art. An apple has fallen from some tree, and lain unobserved; the fruit has decayed on the spot, and enriched the ground; and from the soil thus peculiarly prepared by nature, has sprung up a tree, whose produce has proved of peculiar excellence and flavour.

This view of the subject will receive some confirmation from the circumstance, that it is seedling fruit-trees only which deteriorate from the qualities of the parent stock, or return to the wild state, as our gardeners suppose, whose seeds have been separated from the rich fruit in which they were enveloped, and been deprived of that peculiar pabulum, which was provided by nature for their first developement. The Apple Pip itself may possibly ripen better, and be earlier prepared for vegetation, in a separate state, but when it is sown, I do not hesitate to recommend its being again inserted in fruit of the same kind, or in mould enriched by an admixture of decayed apples.* In short, I would follow the course pointed out by nature, as closely as the case will admit.

I will only add, that these ideas are not altogether theoretical, but partly the result of experiment. A few years ago I saved some Apple Pips in my garden, and having the same spring a quantity of decayed Apples, I put them into the furrow with the pips, and applied them to the enriching the soil. Of the seedlings thus raised, a few have begun to bear fruit, and almost every one of good flavour. I send a specimen of one sort for the judgment of the Fruit Committee.

I am, Sir,

Your very obedient servant,

Buckland Cerne, Dorset. JAMES VENABLES.

* Perhaps it might be best to extract the core with a scoop, fill the cavity with earth, into which one or more pips may be introduced, and then to plant the apple in the ground.

IV. *Upon the Cultivation of Epiphytes of the Orchis Tribe.* By JOHN LINDLEY, *Esq. F. R. S. &c. Assistant Secretary.*

Read May 18, 1830.

IT is well known that one of the subjects of experiment in the Garden of the Horticultural Society has been, during several years, the cultivation of those remarkable plants belonging to the Orchis tribe, which in their native situations, within the tropics, are found growing upon trees or rocks. Since there exists some difference of opinion as to whether such an enquiry is a legitimate object of Horticultural investigation, and since considerable interest is taken in the question by many Fellows of the Society, I beg leave to offer the following remarks upon the original cause of this enquiry having been instituted, and the practical conclusions that appear to be deducible, either from the facts that are known relative to the natural habits of these plants, or from the experience that we have acquired.

Botanists were aware, at a very early period of the history of science, of the existence in tropical countries of a race of plants found growing upon the trunks of trees, very different from any thing wild in Europe; and not less remarkable for their beauty or fragrance, than for the extremely singular structure of their flowers. The figure of *Coatzonte Coxoahitl* by HERNANDEZ, a nearly related species of which has been since described by HUMBOLDT, under the name of Anguloa superba, the plates of PLUMIER, of RUMPHIUS, and RHEEDE, the drawings of the Chinese, and the reports of travellers, had all contributed to excite a lively desire in the minds of the collectors of rare or curious plants to add these wonders of the

tropical forest to the number of objects compelled to submit to the skill of the cultivator.

It does not, however, appear that any success attended the first attempts to introduce these plants to Europe; or, if they reached this country, they were speedily lost. The Vanilla seems to have been the first that became established in the hothouses of England, and to have been in fact, the only kind that was known to MILLER. According to the Hortus Kewensis, two or three and twenty species, only, had become fixed at Kew during the last ten years of the last century, and it is certain, that from this period, up to the establishment of the Society's Garden at Chiswick, the number had increased but very slowly. A stimulus had indeed been given to the pursuit by Mr. CATTLEY, but the single efforts of that gentleman had not been sufficient to produce any considerable accession to the number of species in cultivation, although they contributed, in an important degree, to improve the then existing methods of treating them. It would seem that not more than twelve or fourteen species had been added to the Garden at Kew, in the first thirteen years of the present century, and such bad success had attended their cultivation upon the continent, that only nineteen species were mentioned, in 1822, in Professor LINK's Catalogue of the Garden at Berlin, one of the richest in Europe.

It was supposed that this very remarkable instance of want of success, in the preservation of plants of such universal interest, was due to some peculiar difficulty in their cultivation, and it was resolved that an attempt should be made, in the Garden of the Society, to overcome it. A corresponding feeling elsewhere seems to have been called forth about the same time, and probably by the Society's example, so that it has come to pass that, not to mention the Chiswick Garden, private establishments in this country can boast of far richer collections, and more successful management than the most celebrated gardens of the continent. It is well

known that the stoves of Messrs. Loddiges of Hackney, Messrs. Richard and Arnold Harrison of Liverpool, and Mr. Cattley of Barnet, are unrivalled in the number of species that they contain, and that the total number now found in the gardens of Great Britain is certainly not less than two hundred; while the Catalogue of the Jardin du Roi at Paris, made up to last year, enumerates but nineteen.

In instituting this enquiry, the obvious question was, what are the conditions of soil and climate, under which these plants flourish in their native place? but it was found exceedingly difficult to answer this question with any degree of precision. The data that existed upon the subject were imperfect, and the conclusions that were drawn from them were necessarily proportionably unsatisfactory. It was only known that generally their native climate was the tropics, and their food the decayed vegetable soil that collects upon trees.

All our earliest experiments were consequently unsuccessful; we lost our plants as quickly as we received them, and when we preserved a single species out of an entire collection we thought we had met with great success. By degrees, however, we discovered better means of management, and acquired more precise information upon the subject of their native places of growth, the substance of all which may be said to amount to this, that a well drained soil, shade, a very high temperature, and an atmosphere nearly saturated with humidity are the conditions that are requisite to ensure their successful cultivation, and that soil itself is of little importance to them; we have used common garden earth, lime rubbish, gravel, decayed vegetable matter and moss, and all with equal success, provided the drainage was effectual, and we have found all these equally useless when the drainage was not attended to; a circumstance which is no doubt due to the succulent nature of the plants, and to the very imperfect means that most of them

possess of parting with superfluous moisture: in consequence of the compact nature of their cuticular tissue and of the minute size, or small number, of stomata or evaporating pores. We have found that no soil or temperature would nourish them in drought, and that any soil was good when the temperature and atmospheric humidity were carefully regulated. To speak very accurately upon these points, I should say that the mean temperature of the air in the day ought to be 87° or thereabouts, and that its humidity should be at the point of saturation or nearly so. We have found that the same plants which refused to grow when placed upon the stage of a hot-house, the air of which possessed the necessary conditions of heat and vapour, flourished with all their native luxuriance, if the pots in which they were planted were suspended freely by wires from the roof; a difference which no doubt depended essentially upon drainage; and we have seen that moss alone would under these circumstances maintain in perfect health plants which the most carefully managed soil appeared to kill if the humidity of the air and the drainage were unattended to.

Having originally taken great interest in this enquiry, I have for some years been collecting information relating to it, and I find that if we had had in the beginning the same knowledge of the native habits of Orchideous Epiphytes that we now possess, those conclusions that are now the result of many years careful and expensive enquiry would have been obvious inferences prior to any experiments whatever having been instituted. The facts that I have collected are the following.

Orchideous Epiphytes grow naturally upon trees, in the recesses of tropical forests; they establish themselves in the forks of branches, and vegetate amidst masses of decayed vegetable and animal matter; in consequence of their position there cannot possibly be any accumulation of moisture about the roots. They will also grow equally well upon rocks and stones in similar situations. Mr. W. Harrison

of Rio Janeiro is mentioned by one of the Society's Collectors who visited him, to cultivate with the most perfect success above seventy species upon a wall in his garden at Boto Fogo. We see some of them germinate and grow most luxuriantly in damp places, in the stove, upon the sides of the garden pots, and among gravel, and Dr. Wallich found them in all cases growing equally well upon trees, and stones, provided the latter had a certain quantity of mould and moss adhering to them.

In the Botanic Garden at Calcutta they are cultivated with success in raised beds of solid brickwork, so contrived as to ensure the most perfect drainage; the soil being rich vegetable matter mixed with at least two thirds small pebbles, and covered with a dense layer of moss.

Shade seems essential to them, their natural situation being in deep forests, or among the branches of growing trees. In Brazil they exclusively occupy damp woods, and rich vallies, among vegetation of the most luxuriant description by which they are embowered. In Nipal, I learn from Dr. Wallich, that Orchideous Epiphytes grow in company with ferns, and the thicker the forest, the more stately the trees, the richer and blacker the natural soil, the more profuse the Orchideæ and ferns upon them. There they flourish by the sides of dripping springs, in deep shady recesses, in inconceivable quantity, and with an astonishing degree of luxuriance.

In the Botanic Garden at Calcutta, it is found that they thrive best under the shade of trees with dense but airy foliage, such as Mimosas, especially the Acacia stipulata, the huge stem of which is the more remarkable when compared with the myriads of minute leaflets by which it is formed.

High temperature and excessive humidity are together the other conditions essential to the well-being of these plants. The hottest countries if dry, and the dampest if cool, are destitute of them,

while there is no instance of a country both hot and damp in which they do not swarm. This can readily be shewn.

There is perhaps no part of the world in which they more abound than India; in the Malayan Archipelago, the climate of which is intensely hot, the mean temperature being between 77° and 78°, and damp to saturation, they exist in enormous quantities. In Nipal, they are only found upon the sides of the lower mountains, where they vegetate amongst clouds and constant showers; while on the continent of India they are almost unknown, their place being occupied by parasitical Loranthi. The traveller finds himself in the morning on the dry plains of Hindustan, where the mean temperature is 80°, and where all the trees are destitute of Orchideæ, and at noon he is at the foot of the first range of Nipalese hills, where every tree teems with that class of plants. There are, however, places on the continent of India, where they are not less numerous than in Nipal; at the estuaries of the Ganges, the Burhampooter, (Burmapootra) the Irawaddi, and the rivers of Martaban, they exist in vast quantities: but all these stations are excessively damp. In the Botanic Garden, Calcutta, they grow most vigorously during the rainy seasons, but in the fiercely hot season that begins in March, and lasts till the 10th of June, they perish, notwithstanding all the care they receive.

The humidity of the Isle of France and Madagascar is well known, and the mean temperature of the former has been computed at 80° 4′; here vast quantities abound.

In Africa they are rare, its sandy deserts and parched atmosphere are unfavourable to their growth, notwithstanding the high temperature of that torrid region. They are, however, found at Sierra Leone in abundance, where the mean temperature is 70° 7′, but modified by vapours, the existence of which is unfortunately but too well ascertained. At the Cape of Good Hope they are wholly unknown, and although the temperature of the northern parts of

the Colony is probably at least equal to that of the Mauritius, yet the aridity of the region prevents a trace of them being seen.

In America, their favourite station, according to HUMBOLDT, is in the gorges of the Andes of Mexico, New Grenada, Quito and Peru, where the air is mild and humid, and the mean temperature 63°—67° Fahr. (17°—19° cent.) In these localities they are so abundant, that according to the authors of the Flora Peruviana above 1000 species might be found in Tarma, Huanuco and Xauxa alone. They are not seen further north than Florida, where a single species, Epidendrum conopseum, is found on the Magnolia; but it is well known that the vicinity of the gulf of Mexico, and the effects of the gulf stream, give the vegetation of Florida, a tropical, rather than extra-tropical appearance. In that country this solitary representation of tropical Orchideæ exists in the same region as myriads of Tillandsia usneoides, which usually vegetates beneath the influence of the dampest tropical atmosphere.

In the West India Islands, they exist in vast quantities, particularly in Jamaica and Trinidad, not however so much on the coast as upon the lower ranges of hills. This is in conformity with their habits elsewhere; in these islands the air of the level of the sea is very dry, while that of the mountains is unusually humid. Captain SABINE found the air of the level of the sea at Trinidad indicate 5° of dryness, and that of Jamaica, 7°; while the atmosphere was saturated with humidity in the first of these Islands, at 1060 feet above the level of the sea, and in the second at an elevation of 4080 feet.

At Rio Janeiro, the mean temperature is 74° 3′, and much higher inland; there the woods are so damp that it is difficult to dry plants, and in such situations inconceivable multitudes of Orchideous Epiphytes are found; but at Buenos Ayres where the mean temperature is 67° 6′ and the air dry, they are unknown; and in the high dry land of Mendoza where the aridity is still greater, the whole

order almost disappears. On the west coast of South America, as high as Lower Peru, they are unknown; a circumstance which will not be surprising, when we consider the effect of the currents setting round Cape Horn, which bring the mean temperature of even Lower Peru itself down to 60° at night, and how arid the whole of that region is with the exception of a few vallies.

From this I think it may be safely deduced as a certain fact, that the most favourable conditions for the growth of Orchideous Epiphytes, are as I have before stated, a well drained soil, a shady situation, a saturated atmosphere, the mean temperature of which is not less than from 79° to 80°, and a complete protection from dry parching winds. Such appears to be the climate to which they are naturally subjected, in most cases; with the exception of the species found in the Mexican Andes. Two species are indeed found in Japan, the mean temperature of which is no doubt much lower than what I have stated, and it appears from Mr. BROWN's remarks that in New Holland they are less numerous within the tropics, than in the parallels of 33° to 35° S. L. the mean temperature of which is probably not very different from that of Port Jackson, viz. 66° 6′.

If then we reflect upon the natural habits of Orchideous Epiphytes, and upon the little similarity that often prevails between the atmosphere of hothouses and that in which, alone, it has been seen that they can exist, we shall cease to wonder at any failure, that may have attended their cultivation. No accuracy was formerly observed in the proportion of vapour and temperature in the atmosphere of a stove; a circumstance which must have been fatal to many plants besides those now under consideration. Even at the present day the air of many of the hothouses that I see would, I am persuaded, be found to indicate 6° or 7° of dryness, a condition to which such plants as these are never subjected by nature; in those districts of the East and West Indies where such a climate

Mo. Bot. Garden,
1897.

prevails, we have seen that they disappear, but that as soon as atmospheric humidity increases sufficiently, they spring up in myriads from every tree.

I am persuaded that if these facts are carefully borne in mind, we shall no longer experience any difficulty in the cultivation of Orchideous Epiphytes, and that the time is not distant when the beauty of the Dendrobiums and Bolbophyllums of India, of the Oncidiums of the West Indies, of the Aerides of China, and of the Epidendrums of Peru, will add a charm to every hothouse.

V. *On the Cultivation of the Vine upon the open Wall, at Croxdale. In a Letter to the Secretary. By* William Thomas Salvin, *Esq. F. H. S.*

Read November 17, 1829.

Sir,

I am happy to comply with your request in explaining the manner in which I cultivate the Vine on the common flued wall, without glass or any other kind of covering.

My wall is above eighteen feet high; fourteen or sixteen feet would answer equally well. The fire-places are made in the form of ovens, as I burn nothing but wood in them. This may appear rather extraordinary as I live in a coal country. My reason for so doing is, I find wood produces a more steady heat by the management of the fires in the following manner. After an accumulation of ashes is produced in the oven, they should be used to cover the embers at night, or at any time when those who attend the fires retire to rest, and also to regulate the fire during the day, when less heat is required. The red-hot charcoal so covered will continue to give out heat for several hours, and is ready to rekindle a fresh supply of wood, whereas coal requires more constant attendance, or will soon go out. I begin to light the fires in the ovens as soon as the buds begin to break in April, and continue them night and day till the fruit is perfected, except a few weeks in July and August, if the season is hot. Rotten dung is put to the roots and dug in during the spring; the Vines are trained to the wall and pruned in the usual way. The Vine on the open wall has been cultivated at Croxdale ever since the year 1725, and under my direction for the last twenty-nine years with the greatest

success. It is necessary to plaster the inside of the flue in the best manner where wood is used, as otherwise the steam or smoke from the wood will force itself through the joints of the wall in the form of tar, and injure the Grapes.

I remain, Sir,

Your obedient servant,

WILLIAM THOMAS SALVIN.

Croxdale,
October 31, 1829.

VI. *An Account of a New Variety of Plum.* *By* THOMAS ANDREW KNIGHT, *Esq. F. R. S. President.*

Read July 6, 1830.

THE Plum is generally supposed by British Horticulturists to be a fruit, which can only be brought to our tables during the summer and autumn, unless it be as a conserve, or in a dried state; and the samples which we receive from France of Plums in the latter state, are not calculated to make a favourable impression respecting the merits of the dried fruit. The defects of these do not, however, properly belong to the species of Plum, but to the variety used, which does not contain sufficient saccharine matter, (as the taste of the dried fruit sufficiently proves) to render it capable of being preserved unless in a dry, or nearly, a dry state.

I stated in the Transactions of this Society some years ago, that a Plum of COE's Golden Drop, having been accidentally left in a cupboard in the house of Mr. WHITLEY of Brompton, had been found perfectly sound in the following spring; and that having in consequence of this circumstance obtained a couple of trees of that variety from him, I had preserved, without any peculiar care, some of the fruit in the highest state of perfection till the middle of December. The report of that Plum having so long remained sound alone induced me to cultivate it; for Mr. WHITLEY did not at all recommend it as a good fruit, and it was from me that he, and I believe, the public, received the first account of its excellence. The quantity of saccharine matter, which COE's Golden Drop Plum contains, when in its highest state of maturity and perfection, is very great; and so far that variety appeared to me to be well cal-

culated for being long preserved: but I thought that a Plum of firmer and more abundant flesh must be, for many different reasons, preferable. I, in consequence, raised many plants obtained from the seeds of the Purple Imperatrice, and pollen of Coe's Golden Drop Plum, several of which have since afforded fruit of considerable merit, and of which one appears capable of being very long preserved, without material trouble. A sample of this variety (No. 6) was sent to this Society three years ago, and it is figured in a plate with five other varieties in our Transactions, and recommended as deserving culture. In the autumns of 1829 and 1830, I selected a few Plums of this variety, and, having folded them in blotting paper, I put them into a paper bag, and suspended them in my apple chamber; through which, except in very cold weather, a free current of air always passes. In this situation all of them remained perfectly sound till the end of February, or beginning of March, gradually, but slowly becoming more shrivelled, and ultimately still retaining a good deal of juice: and I entertain scarcely any doubt but that with the aid of closed jars, I could have preserved them till Midsummer, or longer.

Respecting the taste and flavour of the fruit above mentioned, I would rather that the public should trust to the opinion of those gentlemen who tasted that sent to the Society, than to mine: but as I have had much more ample opportunities of estimating its merits than they have, I will add what will, I believe, be found an accurate description of it. It is, in bulk, a size larger than the purple Imperatrice, when grown in the same situation and soil; and I think it contains a good deal more saccharine matter, with more acid than that variety; and with more flavour and some degree of astringency, to which it may possibly owe, in some degree, its power of remaining so long sound. Its colour is nearly that of the purple Imperatrice, but a little darker.

The original standard tree grows with extraordinary vigour and

luxuriance, and bears abundantly; ripening its fruit, which I have never seen cracked in any season, tolerably well: but the fruit sent to the Society was grown upon a branch inserted on an old Plum tree.

I possess at least a couple more good Plums of the same family, of which I propose to send samples to the Society in the autumn; and I shall be happy to send grafts of any, which may be approved. The latter part of the autumn, and the beginning of winter, appear to me to be the seasons, when good varieties of the Plum would be most valuable: for in the earlier part of the year, a fine Plum, such as the Green Gage, has not only to compete with the Moor-park Apricot, and the best of our Nectarines, but nine tenths of the fruit, in a large majority of seasons, are destroyed by wasps and other insects, before they have had time to acquire their highest state of maturity. The Plums above mentioned, on the contrary, wholly escape all injury from those causes, and ripen at a season, when fine fruits are less abundant.

I have also many new varieties of Pears, some of which possess much excellence, and which bear and ripen well upon standard trees, and in situations where the Belgic varieties do not succeed at all; and it will afford me pleasure to supply grafts of any which I possess, and which the Society may wish to receive.

VII. *A Report upon the Varieties of Apricot cultivated in the Garden of the Horticultural Society. By Mr.* Robert Thompson, *Under Gardener in the Fruit Department.*

Read February 15, 1831.

Few fruits are less accurately known than Apricots, or have their nomenclature in a state of greater confusion. To the seventeen distinct varieties comprehended in the following remarks, belong at least from seventy to eighty synonyms, and of the names which I have not enumerated, there is reason to believe that the greater part, certainly the most important part, is referable to some one of the varieties now about to be described. It has been therefore thought advisable that a report upon this very useful fruit, should be one of the first supplied from the Garden, notwithstanding the want of precise information upon some kinds; a circumstance which has been caused in a greater degree by the extreme inaccuracy of the names under which they have been received into the Garden, than even by the unfavourable seasons that have lately been experienced in this climate. The whole of the conclusions at which I have arrived, have been the result of personal examination, in successive summers, of trees in the Society's Garden growing upon walls, and I have rarely trusted to books for the determination of synonyms; this I have thought it right to state, in order to explain why in one or two cases the identifications of pomological writers have not been admitted as certain. The fact is that our books are filled already with so many errors in consequence of an implicit admission by one writer of the opinions of another, that it has been thought better to omit certain synonyms altogether, rather than

run the risk of introducing into the report a single inaccurate statement, which it was possible for care to prevent.

In arranging the varieties, it has been found that the most important and constant characteristic is the flavour of the kernel, which in some is bitter, in others sweet like a nut. This is accordingly taken as the basis of arrangement; whilst the size of the flowers and colour of the fruit, along with some differences in the stone, are chiefly employed to distinguish the varieties themselves from each other.

CLASSIFICATION OF APRICOTS.

I. Kernels bitter.

* *Fruit small, round, early. Flowers small.*

1. Red Masculine.
2. White Masculine.

** *Fruit large.*

† *Channel of the stone closed up.*

¶ *Flesh parting from the stone.*

3. Large Early.
4. Roman.
5. Blotched-leaved Roman.
6. Royal.
7. Brussels.
8. Shipley's.
9. Almond.

¶¶ *Flesh adhering to the stone.*

10. Montgamet.

†† *Channel of the stone pervious.*

11. Moorpark.
12. Hemskirke.

II. Kernels sweet.

* *Flesh parting from the stone.*

13. Breda.
14. Angoumois.
15. Musch Musch.
16. Turkey.

** *Flesh adhering to the stone.*

17. Orange.

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1. Red Masculine Apricot.

Syn. Masculine. *Forsyth, Treatise*, p. 2. *Switzer, Fruit Gardener*, p. 100. *Hitt, Treatise*, p. 295. *Langley, Pom.* p. 88. *Miller, Dict.* No. 1.

Early Red Masculine. *Hort. Soc. Cat.* No. 9.

Brown Masculine, *of some Collections.*

Abricot Précoce, or Abricotin. } *Noisette, Manuel*, p. 489. *Bon Jard.* 1828, p. 305.

Frühe Muscateller Aprikose. *Baumann, Taschenbuch*, p. 389.

Abricot Précoce. Abricot Hâtif Musqué. } *Duhamel, Arbres Fruitiers*, 1. p. 133. *Mayer, Pom. Franconica*, 1. p. 29, t. 2, f. 1. *Sickler, Teutsche Obstg.* 8. p. 313. *Kraft, Pom. Austriaca* 1. p. 26, *t.* 51. *Noisette, Jard. Fruit.* p. 2, t. 1.

Musqué Hâtif. *Hort. Soc. Cat.* No. 7.

Leaves large, broad, roundish, cordate, acuminate, coarsely serrated, auricled at the base. Fruit small, roundish, hollowed considerably at the base; it does not vary like many of the other sorts to an oblong shape. Skin dull honey-yellow on the shaded side, and tinged with red next the sun. Flesh pale yellow, juicy, and tender, slightly perfumed, parting from the stone; the latter is large for the size of the fruit, and roundish. Kernel bitter.

The earliest Apricots, cultivated in this country, are the Red

and the White Masculine varieties, the chief recommendation of which is their time of ripening. Of the two, the Red Masculine is the best, and is probably more generally grown than the other. It appears to have been cultivated in this country in the time of Switzer and Hitt; the former of whom wrote upwards of one hundred years back, so that its introduction must have been at a remote period. The French call it Abricot Précoce, or Abricot Hâtif Musqué, and sometimes Abricotin. How it received the name of Masculine in this country is not known; the French have an *Abricot Mâle*, and the Germans a *Männliche* Apricot, but these are synonymous with the Abricot de Portugal, a much later variety than this.

2. White Masculine Apricot.

Syn. Early White Masculine. *Hort. Soc. Cat.* No. 8.
Abricot Blanc. } *Duhamel, Arbres Fruitiers,* 1. p. 134.
Abricot Pêche. } *Mayer, Pom. Franc.* 1. p. 30. *Kraft, Pom. Austr.* 1. p. 27. *Noisette, Jard. Fruit.* p. 2. *ib. Manuel,* p. 489. *Bon Jard.* 1828, p. 305.
White Algiers, *of some Gardens.*

The trees under the name of the White Masculine in the Garden of the Society, have all proved to be the same as the Red Masculine. But a sort received under the name of White Algiers, which does not at all agree with the time of ripening of that variety, is probably what the English call the White Masculine. It is however not easy to tell what this variety should be, no description of it existing in any printed work. Miller, and other earlier writers do not even mention the name. Forsyth appears to be the only one who notices it: he, however, gives no description, but refers it to the Abricot Blanc, and Abricot Pêche of Duhamel, and the Pomonas Franconica and Austriaca, and there is every reason to justify his doing so. There can be little doubt of its being a sort which has been introduced from the continent subsequently to the Red Masculine, or what had been till then called

the Masculine in this country, and from the close affinity of the two sorts they had become distinguished by the names of the Red and the White Masculine. There is no other described by the French Authors to which the latter could be referred, except the Abricot Blanc. DUHAMEL describes that sort as being a variety of the Abricot Précoce, or our Red Masculine; of a pale waxy white, the skin more downy than that of other Apricots; with somewhat of a Peach flavour; hence the synonyme of Abricot-Pêche. This synonyme is now however transferred to the Abricot de Nancy, or our Moorpark.

3. LARGE EARLY APRICOT.

SYN. Large early. *Hort. Soc. Cat.* No. 47. *Pom. Mag.* 3. t. 142.

Abricot gros précoce. *Audibert, Cat.*

Abricot de St. Jean. *ib.*

Abricot de St. Jean Rouge, *in Languedoc.* *ib.*

Abricot gros d'Alexandrie, *in Provence.* *ib.*

Die grosse Frühe Aprikose. *Sickler, Teutsche Obstg.* 12. p. 139, t. 12.

Leaves large, broad, oval, rather sharply serrated, tapering more to the petiole than perhaps any other, and frequently auricled. Fruit large, somewhat oblong, compressed; projecting considerably on the side of the suture, which is deep, and terminates in a projecting point situated towards the back, beyond the axis of the fruit; the back is nearly straight. Skin downy, of a fine bright orange red next the sun, with spots of deeper red; pale orange on the other side. Flesh parting from the stone, orange coloured, juicy, rich. Stone brown, much flattened, oval, sharp on the front, channelled along the back, from the base to the apex. Kernel bitter.

It would appear that this sort has obtained considerable extent of cultivation on the continent, but it is only of late introduction to this country. It might be deemed worthy of attention, even if its time of ripening were in the general season of Apricots. But, as it comes in at a time when no others are to be had, except the early Masculines, either of which it far surpasses in merit, its value on that account will be apparent. It is probable from its being

called in Provence, Abricot d'Alexandrie, that it has not originated in France. It was received into the Garden from Messrs. Audibert at Tarascon, and from M. De Candolle of Geneva.

Ripens about the middle of July in this country. In France it ripens about Midsummer, whence its name of Abricot de St. Jean. In general appearance it is much like a Roman Apricot, but its quality is better, and it precedes it by a fortnight; it is also more compressed and elongated. Its culture and fertility are not different from the generality of the same class of fruit.

4. Roman Apricot.

Syn. Roman. *Langley, Pom.* p. 89, t. 15, f. 4. *Miller, Dict.* No. 4. *Forsyth, Treatise,* p. 3. *Hort. Soc. Cat.* No. 19. *Pom. Mag.* t. 13.

Roman or Common. *Switzer, Fruit Gardener,* p. 100.

Common. *Forsyth, Treatise,* p. 5.

Abricot Commun. *Duhamel, Arbres Fruitiers,* 1, p. 135, t. 2. *Noisette, Jard. Fruit.* p. 2, t. 1. *Hort. Soc. Cat.* No. 40.

Gemeine Apricose. *Kraft, Pom. Austr.* 1, p. 31. *Sickler, Teutsche Obstg.* 6, p. 313. *Christ, Pomol. Handw.* p. 646. *Baumann, Taschenbuch,* p. 389.

Grosse Gemeine Apricose. *Mayer, Pom. Franc.* 1, p. 31, t. 3.

Brussels Apricot,
Turkey Apricot, } *of some Collections.*

Wood very smooth, rather short-jointed, reddish brown, when young not much speckled, but becoming conspicuously so when older. Buds prominent. Leaves large and broad, cordate, irregularly crenated, between flat and concave: petioles about an inch and half long, brownish, with a few sessile globose glands. Flowers of the ordinary size and appearance. Fruit middle-sized, or rather large, dull straw-colour, with a little dotting on the sunny side of orange or red, but in such small quantity that the skin has always a pallid appearance; in form slightly compressed, inclining to oval, with a shallow suture, through which the fruit can be readily, when ripe, separated in two halves by a

slight pressure on each side of the base. Flesh dull, pale straw-colour, soft, soon becoming mealy, and requiring to be eaten rather before its maturity. Stone flat, oblong, rather obtuse at each end, with a very even surface, separating wholly from the flesh, except at the base; it is generally divided from the flesh by a little cavity when the fruit is fully ripe. Kernel very bitter.—*Pomol. Mag.* p. 13.

On account of the vigour of the tree, and the size and abundance of the fruit which it produces, this sort had been probably the most generally cultivated, previous to the introduction of that superior variety the Moorpark. That it was so appears from its being called in Switzer's time, the *Roman* or *Common* Apricot: and the continental writers also describe it under the name of Abricot Commun.

It is often to be met with under the various names of the Brussels and of the Turkey Apricot. Bears abundantly, and ripens in the beginning of August; but it is more fit for preserving than for the dessert, the juice being much less highly flavoured than that of many sorts.

5. Blotched-leaved Roman Apricot.

Syn. Blotched-leaved Turkey.
Variegated Turkey.
Striped Turkey.
} *Hort. Soc. Cat.* No. 27.

Maculé, *(of the French.)* *ib.* No. 42.

Abricotier à Feuilles Panachées. *Duhamel, Arbres Fruitiers*, 1, p. 145.

Abricot Commun à Feuilles Panachées de Jaune. *Noisette, Jard. Fruit.* p. 2.

Abricot Commun à Feuilles Panachées; Armeniaca Vulgaris variegata. *Audibert, Cat.*

Bunte oder gefleckte Apricose. *Mayer, Pom. Franc.* 1, p. 34, t. 4. *Baumann, Taschenbuch*, p. 388.

Bunte Apricose. Apricose mit Scheckichten Blättern. *Kraft, Pom. Austr.* 1, p. 29.

The fruit is similar to that of the Roman, or Common, of which

this is only a variety, the principal difference being expressed by its name. The leaves are blotched with a pale yellow, or golden colour. In this respect, however, they vary in different seasons, and in different soils and situations, so that often most of the leaves on the tree are entirely green, and such as are not so, but very little variegated.

In Noisette's Manuel, there is an account of an Abricot Pêche à feuilles marbrées de blanc; but no Abricot Pêche or Moorpark has yet been observed in England with variegated leaves.

6. Royal Apricot.

Syn. Royal. *Pom. Mag.* 1, t. 2.
Abricot Royal. *Bon Jard.* 1827, p. 288. *Noisette Manuel*, 2, p. 490. *Baumann, Taschenbuch*, p. 387. *Hort. Soc. Cat.* No. 50.

Wood strong, rather longer jointed than in the Moorpark; when mature, closely marked with pale transverse specks, appearing through the opening of the epidermis. Leaves very large, roundish, cordate or ovate, in some degree cucullate, generally auricled at the base. Flowers of the ordinary size. Fruit about the size of the Moorpark, rather oval, somewhat compressed, of a dull yellow, slightly coloured with red in a small space. Suture shallow. Flesh pale orange, very firm, juicy, sweet and high flavoured, with a slight degree of acidity. Stone large, oval, not adhering to the flesh, blunt at each end, with scarcely any passage in the edge. Kernel slightly bitter, but less so than in the Moorpark.

This valuable sort was raised in the Royal Garden of the Luxembourg, whence a plant was sent to the Society by M. Hervy, the Director. It fruited in the Garden in 1828, and was then figured in the Pomological Magazine. This sort has been found to possess the high degree of merit hitherto ascribed to it, even although the seasons have been rather unfavourable. Its excellence will be sufficiently understood, when it is mentioned as being difficult to determine whether it or the Moorpark is the best. The latter sort is liable to die off by limbs, especially in very hot summers

when bearing a heavy crop. Nothing of this has been observed in the Royal, but, whether it will be less subject to this accident, the limited extent of its cultivation has not yet been sufficient to prove. At all events its time of ripening, being about ten days earlier than the Moorpark, makes it an object of considerable importance.

7. Brussels Apricot.

All the trees received under this name, which have fruited in the Garden, have proved to be the same as the Roman. It seems hopeless to attempt to disentangle the synonymes of writers who have confounded it with other kinds, and successively copied the one from the other; and as the true kind has not yet fruited in the Garden, no description is given of it here. Some very old open-standard trees growing in the Gardens of His Grace the Duke of Devonshire, at Chiswick House, are believed to be the true sort, and in favourable seasons they bear well. Their fruit is oval, compressed, of a pale orange colour, acquiring a brown tinge with deep blood-red specks next the sun; the flesh is juicy, somewhat crisp, and the fruit is most excellent for preserving; the kernel is bitter.

8. Shipley's Apricot.

Syn. Shipley's. *Hort. Soc. Cat.* No. 24.
Blenheim,
Shipley's,
Shipley's large,
Miss Shipley's,
} *of various Collections.*

A fine looking fruit, very like the Roman but larger; oval, compressed, rather oblique at the base and apex. Skin clear yellow, minutely speckled with brown. Flesh of a very bright deep orange, juicy, with a pleasant sweetish-acid flavour, without much aroma; not adhering in any degree to the stone. The latter is of an almost round figure, a little elongated, and without a pervious channel. Kernel very bitter.

This sort is larger and more downy than the Roman which it resembles. Sometimes it is as high coloured as the Moorpark,

but though very juicy and rich, yet it is not so well flavoured. It ripens about the last week in July. Said to have been raised from seed by Miss Shipley of Blenheim, some years since.

9. Almond Apricot.

Syn. Abricot Amandier. *Hort. Soc. Cat.* No. 34.

In form like the Roman Apricot. Skin pale straw-colour where shaded, with some pale blotched pinkish spots next the sun. Suture very shallow. Flesh pale yellow, dry with very little flavour. Stone not adhering, oval, blunt at each end. Kernel bitter.

This was received from the Luxembourg Garden at Paris, and is probably a seedling from the Abricot Commun, or what is generally called the Roman, to which it bears considerable resemblance; it is however not so good. I do not find it in any French Author. It has little or no merit.

Ripens in the end of July or beginning of August.

10. Montgamet Apricot.

Syn. Albergier de Montgamet. *Hort. Soc. Cat.* No. 31.

Leaves middle-sized, broad and rounded at the base, tapering to a point at the other extremity. Serratures moderately deep. Fruit small, rather compressed, about half as large again as the White Masculine, which it outwardly resembles. Suture deep. Stalk deeply inserted. Skin pale clear yellow, slightly tinged with red next the sun. Flesh firm, watery, juicy, but without much flavour, adhering to the stone, which is roundish, and has a bitter kernel.

This is a variety of the Albergier, and is said to have originated in Touraine, where it is considered one of the best. At Paris, however, it is not much esteemed.

Said to succeed best at the place from whence it derives its name, and in the environs of Tours, where the Albergiers are very common; it is chiefly used for preserving. Ripens at the end of July.

11. Moorpark Apricot.

Syn. Moorpark. *Nicol, Gardener's Kalender*, p. 167. *Forsyth, Treatise*, p. 3. *Brookshaw, Pom. Brit.* t. 23. *Hort. Soc. Cat.* No. 10.

Anson's.
Dunmore's.
Dunmore's Breda. } *Hort. Soc. Cat.* No. 10, *Syn.*
Temple's.

Imperial Anson. *ib.* No. 5.
Oldaker's Moorpark. *ib.* No. 11.
Sudlow's Moorpark. *ib.* No. 12.
Walton Moorpark. *ib.* No. 13.

Peach Apricot. *Forsyth, Treatise*, p. 4.

Abricot de Nancy. *Duhamel, Arbres Fruitiers*, 1. p. 144, t. 6. *Mayer, Pom. Franc.* 1, p. 37. *Kraft, Pom. Austr.* 1, p. 30.

Abricot Pêche. *Duhamel, Arbres Fruitiers*, 1, p. 145. *Noisette, Jard. Fruit.* p. 3.

Abricot Pêche, or Abricot de Nancy. *Noisette, Manuel*, p. 490.

Pfirsich-Aprikose, oder Nancyer, oder Würtembergische. *Baumann, Taschenbuch*, p. 390.

Abricot de Tours? *Hort. Soc. Cat.* No. 51.

Abricot Pêche, Abricot de Nuremberg, ou du Wirtemberg, Abricot de Piémont. *Audibert, Cat.*

Shoots strong, short-jointed, with a very prominent elevation at the base of the buds; the latter are large. Leaves large, roundish, acuminate, somewhat cucullate, generally furnished with auricles at the base, and with glands on the petioles; of a deep green colour. Fruit large, roundish, compressed, with a shallow suture, sometimes flattened on the summit. Skin of a brownish-orange, in some cases tolerably clear, but generally interspersed with ferruginous specks. Flesh dull reddish orange, juicy and of a high and excellent flavour, peculiar to this Apricot; not liable to become mealy as is the case with some sorts. Its only defects are that it sometimes does not ripen thoroughly

on the side next the wall, and is subject to crack in wet seasons. Stone large, compressed, obtuse, more rugged than in the Roman Apricot; it has a very distinguishing character, which is in the greatest degree peculiar to this sort: a large bundle of fibres passes from the base to the apex of the stone, nearly along the edge, but covered by the stony matter, excepting at either extremity; leaving a perforation through which a pin may be introduced. This has been observed by the French in regard to the Abricot Pêche, as well as by many in this country in the case of the Moorpark. The kernel is bitter, but not so much so as in the Roman Apricot.

The Moorpark Apricot is said to have been imported from the continent by Lord ANSON, and planted at Moorpark. Hence it obtained the name, by which it is most generally known in this country, as also that of Anson's and Imperial Anson. The place where the originally imported plant grew in the garden at Moorpark, is occupied at present by a tree of the Orange Apricot, which is now of considerable size. By another account it is stated to have been imported from the Netherlands in the beginning of the last century by Sir THOMAS MORE, and planted at Moorpark. Its origin being thus traced out of this country, it must be supposed to have been one of those cultivated by the French; for although it is stated to have been imported from Holland, yet no Apricots are described by the authors who treat of fruits in that country, which they do not acknowledge having received from the French. It agrees perfectly with the Abricot Pêche, or Abricot de Nancy, of the latter in every essential and peculiar character, as far as I can discover; but that there is a slight difference, is at the same time asserted by some, although what that slight difference may be has never yet been clearly stated. FORSYTH mentions in his Treatise, p. 4, that the " Peach Apricot, the Abricot de Nancy of DUHAMEL, was introduced from Paris by His Grace the Duke of NORTHUMBERLAND, in 1767. It is the finest and largest of all Apricots, and is generally thought to be the same as the Moorpark; but upon a minute examination the leaves will be found to differ." In what

respect these differ is not stated, neither has the minutest examination and comparison effected any discovery of a distinct or permanent difference. The result of my enquiries has been that a general character in its habit and leaves could be traced through *considerable variations*, arising from the state of the trees, which are very subject to be affected by soil, season, and exposure. It may be also observed that DUHAMEL in treating of this very sort, describes the leaves as varying in their serratures, being in some sharp and very profound, and in others obtuse and shallow. Better authority than that of this author cannot be produced in corroboration of the preceding statement, which admits that differences may be observed which are still not permanent. In the Transactions, Vol. I. App. p. 8. it is stated that the Abricot Pêche is raised generally, if not always from the stone in France, and that it is different from the Moorpark. In a note, however, relating to the same passage it is asserted that our Moorpark Apricot is the Abricot Pêche. In the Second Volume of the Transactions, p. 201, Mr. KNIGHT refers to the Moorpark, or Nancy Apricot, as being the same.

Objections may still be made to some of the synonymes of this sort, on the ground that they may be seedlings and therefore must be different. It must be allowed that seedlings of fruit trees, are for the most part different from the original. But if it should happen that a seedling Moorpark or Abricot Pêche, could not be distinguished in any one respect from the original, there would be no more necessity for its being called by a different name than there would be for altering the name of an Annual, because it was a seedling from the one originally discovered, supposing at the same time it had not sported into a distinct variety.

Trees of the Abricot Pêche from the best authorities in France have been fruited in the Society's Garden, along with the Moorpark. They prove so much alike that there is the strongest pre-

sumption in favour of their being the same. The singular character which the stone exhibits is the same in both. Fruits received from abroad, also agreed uniformly in this respect.

This sort is apt to die off in limbs, especially when allowed to bear too heavy a crop. Mr. Knight has found it to answer well on the Apricot stock. The trees are good bearers, but the fruit does not always ripen equally on both sides; a slight shading will partially remedy this defect when caused by violent sun.

12. The Hemskirke Apricot.

Syn. Hemskirke. *Hort. Soc. Cat.* No. 4. *Pom. Mag.* 1, t. 11.

Wood short-jointed like that of the Moorpark, with enlarged projections under the buds. Leaves broad, deep green, very like those of the Moorpark. Flowers of the ordinary character. Fruit middle-sized, or large, roundish, slightly compressed, very like a Moorpark. Flesh very bright deep clear orange, tender and juicy, with a particularly rich delicate flavour. Stone smaller than that of the Moorpark, with generally a pervious passage, but accidentally without. Kernel bitter, yet less so than in some.

The origin of this variety is not known. It has no doubt been raised from a stone of the Moorpark, of which sort it is evidently a variety possessing all its excellent qualities, and appearing to ripen completely on both sides. A good figure and account of this variety is to be seen in the Pomological Magazine, Vol. I. tab. 11. from which the foregoing description has been taken.

13. Breda Apricot.

Syn. Breda. *Hort. Soc. Cat.* No. 2. *Pom. Mag.* t. 146.
Brussels, or Breda. *Langley, Pom.* p. 89.
Abricot de Hollande, ou Amande Aveline. *Duhamel, Arbres Fruitiers,* 1. p. 138, t. 4. *Noisette, Jard. Fruit.* 2, p. 3. *ib. Manuel,* p. 488. *Hort. Soc. Cat.* No. 41.

Holländische, Bredäische, oder Ananas Apricose. *Baumann, Taschenbuch,* p. 389.

Die Holländische, Bredäische, oder Orange Apricose, die Hasselnussmandel. *Mayer, Pom. Franc.* 1. p. 33.

Holland. *Forsyth, Treatise,* p. 5.

Abricot de Nancy. *Sickler, Teutsche Obstg.* p. 299.

Wood tolerably vigourous, generally with triple buds. Leaves broadly cordate, acuminate. Fruit rather small, its general form roundish, but often approaching to be somewhat four-sided. The suture is moderately deep, with a depression at its termination on the summit. The skin, where exposed to the sun is of a deep brownish orange. Flesh deep orange, parting freely from the stone; juicy, rich and high flavoured. Stone small, roundish, not so much compressed as in some others. Kernel sweet like a hazelnut; hence the synonyme of *Amande Aveline,* by the French.

Ripens from the beginning to the middle of August on walls, and its perfection is considerably prolonged on standards.

It will be observed in treating of the Orange Apricot, that it is often confounded with the Breda. These two sorts both having sweet kernels, may have occasioned their being considered the same on slight observation. MILLER states that the Breda Apricot was so called from its having been brought from thence to England, but that it was originally from Africa. The sort however which he describes, is different from that of the authorities above referred to. It is impossible to say what his sort may have been. He describes it as a large fruit, with a larger stone than any other sort. The latter circumstance is entirely at variance with the Breda, which is almost the reverse. In some parts of Oxfordshire, a large Apricot is cultivated under the name of Breda, which is probably either the Roman, or Brussels.

In SWITZER's time this appears to have been called the Brussels Apricock; and in LANGLEY's Pomona it is called the Brussels or Breda. That the Brussels of SWITZER was also the Breda, may be collected from his describing the fruit as being of a brisk

flavour, and not subject to become mealy or doughy, like most of the other kinds. This account perfectly agrees so far with the Breda, but not with the Roman, or what has of late been sometimes called the Brussels.

14. Angoumois Abricot.

Syn. Abricot Angoumois. *Duhamel, Arbres Fruitiers*, p. 137, t. 3. *Noisette, Jard. Fruit.* p. 2.
Apricose aus dem Angoumois, die rothe Apricose. *Mayer, Pom. Franc.* p. 32. *Kraft, Pom. Austr.* p. 28.
Rothe Angoumois. *Baumann, Taschenbuch*, p. 388.

Shoots rather slender, smooth and shining. Leaves rather small, broad oval, tapering to either extremity. Fruit about the size of the Breda, and like it in shape. Skin amber yellow where shaded, and of a very deep reddish brown on the exposed side, interspersed with some ferruginous specks. Flesh reddish orange, juicy, sweet, mixed with a slight acidity, very agreeable. Stone middle-sized, broad, ovate, parting entirely from the flesh. Kernel sweet like a nut.

Ripens rather earlier than the Breda.

This sort has some affinity to the Breda, being as it were intermediate between it and the Orange Apricot. Its wood and leaves have most resemblance to the latter, but its flesh parts from the stone like that of the former: with both it agrees in having a sweet kernel. How the Abricot Violet is made a synonyme of the A. Angoumois in the Luxembourg Catalogue, I do not understand.

Besides the sort above described, there are two others in the Garden under the names of Angoumois hâtif, and Angoumois tardif. On their fruiting both proved false to their characters, and consequently nothing can be said about them till fresh plants are obtained.

Noisette mentions that La Bretonnerie says, with reason, that the Abricot Angoumois must be worked on the Almond, because it takes badly on other stocks.

15. Musch Musch Apricot.

Syn. Abricot d'Alexandrie. *Kraft, Pom. Austr.* p. 29, t. 58, f. 1.
Musch Musch. *Noisette, Manuel,* p. 490. *Baumann, Taschenbuch,* p. 389. *Hort. Soc. Cat.* No. 43. *Bon Jard.* 1828, p. 306.

Leaves roundish, subcordate, acuminate, doubly and unequally serrated. Fruit about the size of a Masculine, roundish, compressed with a deep suture. Skin straw-colour next the wall, deep orange in the sun, tinged with red where much exposed, very slightly downy. Flesh tender, very sweet, semi-transparent. Stone roundish, with a very sharp ridge on each side, and much compressed. Kernel perfectly sweet like a nut.

This variety produced fruit for the first time in this country in the end of July, 1830, upon a plant received from Messrs. Baumann of Bollwiller. As the nearest approach to the wild state of the Apricot, as a fruit of considerable intrinsic merit, and as the only one that as far as we know is capable of being dried, this variety possesses so much interest that a figure of it has been prepared by Mrs. Withers. From M. Regnier's account in the Magazin Encyclopédique, for November, 1815, translated in the Appendix to the third Volume of the first series of these Transactions, it appears to be a native of those fertile insulated spots in the deserts of Upper Egypt, called Oases, where the fruit is gathered and dried in large quantities for sale. It there grows spontaneously, almost without any cultivation, and the only method possessed of propagating it, in those parts, is by seeds.

We do not yet know enough of it to be able to judge how far it may become a valuable variety in this climate.

16. Turkey Apricot.

Syn. Turkey. *Miller, Dict.* No. 5. *Hitt, Treatise,* p. 296. *Langley, Pom.* p. 89. *Forsyth, Treatise,* p. 3. *Hort. Soc. Cat.* No. 26.

Large Turkey, *of some Nurseries.*

Abricot de Nancy. *La Bretonnerie, as quoted by Noisette, Jard. Fruit.* p. 3.

Wood strong, short-jointed; buds not particularly prominent. Leaves middle-sized, dark green, rather evenly serrated, slightly concave, roundish-acuminate. Flowers of the ordinary size and appearance. Fruit of a good size, very handsome, deep yellow, with a number of brownish orange-red spots, and blotches next the sun; in form nearly spherical, not compressed like the Moorpark. Flesh pale yellow, firm, juicy, sweet with a little acid, very rich and excellent. Stone separating freely; in figure like that of the Moorpark, but without the hole or pervious passage of that variety. Kernel quite sweet like that of an almond. Ripens on a south wall about the middle of August, and in other situations may be prolonged to the end of the month.

An excellent sort not distinctly known in this country, although it would appear that it has long been introduced.

Fruits that ripen either considerably earlier or later than the generality of the same class, acquire a value beyond their intrinsic merit on these accounts. As an early Apricot we have now the Large Early, wherein size, good flavour, and abundant bearing are combined with precocity. As the latest Apricot, the Turkey, in quality little inferior to the Moorpark, is to be recommended. The Moorpark is rather a late sort, but the Turkey, even on a south aspect ripens after it. Noisette in his Jardin Fruitier, mentions that the Abricot Pêche is commonly known by the name of Abricot de Nancy, but adds that La Bretonnerie distinguishes an Abricot de Nancy which has a sweet kernel. This, in all probability is the Turkey, which although it bears a resemblance to the Moorpark or Abricot Pêche, may nevertheless be readily distinguished by its sweet kernel; that of the Moorpark being bitter.

17. Orange Apricot.

Syn. Orange. *Switzer, Fruit Gardener,* p. 100. *Langley, Pom.* p. 89. *Forsyth, Treatise,* p. 2. *Hort. Soc. Cat.* No. 14.

Early Orange. *ib.* No. 14. *Syn.*
Royal Orange. *ib.* No. 15.
Royal. *ib.* No. 20.
Royal George. *ib.* No. 21.
Royal Persian. *ib.* No. 23.
D'Orange. *Knoop, Pomology,* p. 65.

Leaves flat, pendulous, tapering. Fruit nearly spherical, downy; of a more intense bright orange colour than other Apricots, interspersed with some minute specks. Flesh tender, bright orange, in some seasons juicy, but not highly flavoured; adhering to the stone. The latter is middle-sized, being larger than that of the Breda and flatter, containing like it a sweet kernel. Generally an abundant bearer, and is chiefly useful for preserving.

It is not yet certain which of the French sorts this may be. Of the ten sorts described by Duhamel, there are four with sweet kernels, none of which appear to be exactly the same as the Orange. It may be distinguished from the Breda by its colour being more intense, both outside and inside, and by its flesh adhering to the stone, which in the Breda separates from it.

The remaining sorts described in books, upon which no sufficient information has been procured are the

Albergier de Tours,
——— Ordinaire,
——— de Portugal.

But none of these are of any importance.

VIII. *Upon an improvement in the mode of raising Annual Flower Seeds. In a Letter to the Secretary. By Mr.* Joseph Harrison, *Gardener to the* Lord Wharncliffe.

Read April 20, 1830.

Sir,

I have often observed that when hardy annual flowers which have small seeds, are sown in open borders, and are obliged to be slightly covered with soil, the greater part is generally destroyed by drought; for after the seeds have begun to vegetate, and before they have struck root into the soil, the influence of the sun, and drying winds operating upon the soil and seeds, a failure of crop is the result. From the above circumstances I am led to send you a short account of the method I practice, by which an uniform crop is secured.

After sowing the patch of seeds and covering it with fine moist soil, I place a garden-pot inversely over it; this remains till I discover that the seeds have struck root, when I raise the pot up two or three inches; keeping it thus supported for a few days, and then remove it entirely.

I find that the pot not only keeps the soil moist, but, by the sun heating the pot, the seeds come up much more quickly than otherwise they would do: in consequence of which I do not sow the seeds so early by a fortnight or upwards as I used to do previously. The young plants are therefore less exposed to injury from cold, or late spring frosts.

This practice also prevents the soil being washed off the seeds by heavy rains, and thus leaving them exposed.

The flower gardens here being surrounded by trees, a great

many of the seeds used to be picked up by small birds previous to my adopting the plan of covering with pots, but by this practice, their depredations are prevented.

I have used hollow tiles instead of pots, which answer equally well; excepting that where mice are, they have access at the ends.

I am Sir,

Your obliged obedient servant,

Wortley Hall, Jan. 30, 1830. JOSEPH HARRISON.

IX. *On the Destruction of Snails. In a Letter to the Secretary.* *By Mr.* James Corbett.

Read September 15, 1829.

Sir,

Accounts of many different methods of destroying Snails in gardens, and upon turnip fields, have been given to the public, and some of them have been, I suppose, successful; but all of which I have read or heard, have been attended with a good deal of trouble, and none I am sure, could have succeeded better than that which I send the following account of. The material I use is the same that has been used and recommended by others; but I discovered that it answered the intended purpose much best when it was applied in the night, and in different parts of the night. I began by sprinkling quick-lime lightly over the beds and adjoining alleys and walks about ten o'clock at night, after a wet or very dewy evening, and I usually found a large number of Snails, many of them exceedingly small, dead on the following morning; but some always escaped, and I suspected these to be of another species, which did not leave their hiding places so early in the evening as the others. I therefore tried the effect of sprinkling the lime over the same beds and walks about three o'clock in the morning; and by these means, I in a short time ceased to be troubled with Snails of any kind, in situations where they were before very abundant and destructive. The lime used should be fresh burned, and it should be sprinkled regularly though lightly, not only over the ground but over every plant in the vicinity. It is some years since I have followed the profession of a gardener, but I formerly applied

the means above recommended very extensively, and in several different situations, and on different soils, and I have continued to do so in my own garden, and I have never once failed to succeed perfectly.

I remain, Sir,

Your obedient servant,

JAMES CORBETT.

Newhouse Leintwardain,
Sept. 12, 1829.

X. *An Account of a Method of obtaining very Early Crops of Green Peas.* *By* THOMAS ANDREW KNIGHT, *Esq. F.R.S. &c. President.*

Read May 18, 1830.

THERE is scarcely any vegetable which is so much sought after, as the Pea in its green state early in the season, nor probably any one, in the culture of which, so much labour is usually expended in vain. For a very small portion only of the plants obtained from seeds sown early in the autumn survive the winter and early spring, and many of those which survive, exist in a feeble and unhealthy state, and consequently afford but a very small produce. Much more certain and abundant, and generally as early, crops of Green Peas, may be obtained by raising the plants under glass early in the spring, and transferring them to the open border, when they are about four or five inches high, and treating them in the manner which I have pointed out in a former communication.* I have subsequently raised my plants in semi-cylindrical tiles, such as are usually employed in draining ground, and by previously depositing a little straw, or litter, longitudinally upon the bottoms of these, I have been enabled to slide out the plants into the appointed rows without at all injuring, or disturbing, their roots. But I have ascertained, in the present spring, that I can obtain, by the following means, an abundant crop of Peas at a much earlier period than I formerly thought possible, and at little expence, or trouble.

Having found it impracticable to raise Melons worth bringing to table, before the days become long, and light abundant, I never plant my Melon seeds till the end of February, nor put the plants

* Horticultural Transactions, 1st Series, Vol. V. p. 341.

into the beds, or pots, in which they are to remain to bear fruit, till the end of March, or beginning of April. The frames and lights, were consequently out of employment in January and February in the present spring; and I had also a heap of oak leaves unemployed, which had been collected for the purpose of making hot-beds, and to which use they have subsequently been applied in March. With those a hot-bed was made in the middle of January, into which pots, of about nine inches diameter, were placed, at the distance of one foot from centre to centre. In each of these pots a couple of dozen Peas were put in a circular row; and around them was planted a row of numerous slender twigs, one foot above the surface of the mould. Thus circumstanced the Peas grew very freely, and soon attached themselves by means of their tendrils firmly to their supports; and in the middle of March they had become fourteen inches high, and nearly in contact with the glass roof, which had been previously raised a little. They were then transferred to the open border, and some manure was given, and very numerous sticks were employed to afford them some degree of protection. This transplantation, and removal from the pots, did not appear to injure them in any degree; and in the end of March many of their blossoms were so far advanced, that they had shed their pollen. On the second day of April, a frost of almost unprecedented severity occurred, having been preceded by an incessant fall of snow of forty hours duration; and I anticipated the total destruction of my crop of peas. I was, however, very agreeably disappointed in finding that little, or no greater injury had been sustained by plants of sixteen, than by those of four inches high: and on the 26th of April, when I last saw them, they were at least three weeks earlier than any I had ever previously been able to raise; and that, in a high and cold situation, some of the pods were above an inch and a half long.

An interval of nine inches was left between each pot of plants;

which intervals soon ceased to be visible; and a prospect of an abundant crop was afforded. I therefore conceive myself to have raised an exceedingly early and valuable crop of Peas, without any loss of time to my Melons, plants of which, of proper size and age, and growing in pots, had been made ready to occupy the frames, whence the Peas were taken.

XI. *On the Management of Camellias when forced. In a Letter to the Secretary. By Mr.* Thomas Blake, *F. H. S. Gardener to the* Lord Rolle, *F. H. S.*

Read May 19, 1829.

Sir,

I take the liberty of communicating to the Horticultural Society my treatment of that most beautiful tribe of plants the Camellia Japonica. I flatter myself the few practical hints I have put together in this communication will not be unacceptable to many of the Members of the Society; they are the result of two years application to the subject under consideration, and I should consider myself a bigot in gardening were I not to communicate them to a Society, whose prosperity I am sorry I cannot better promote.

I need not point out to you that most shrubs and plants will force; but there is an exception in the Camellia. It struck me that I could bring the varieties more regularly and quickly into flower by forcing them into bud. I take the plants as soon as they are out of flower, I shift them by taking some of the old mould off the ball, and adding some rich compost, such as I use for Pines, I then place them in a plant stove; the sudden transition from cold to heat causes them to throw out young wood directly, and as soon as I can perceive flower buds I remove them back to the greenhouse till July; I then put them out as much in the shade as possible. By this simple process I am enabled to keep a succession of flowers from November to the following May. Plants when once early excited, appear to look for it the same season again; people in possession of a quantity of pots should not wait for many together, but shift them progressively as they go out of flower. This communi-

cation more immediately concerns gardeners than others, as there are few places but where the lady wishes to have a succession of flowers through the year for her sitting room. I think they cannot do better than attend to the three following varieties of plants, Chrysanthemums, Camellias and Azalea Indica; the last mentioned plant I treat nearly the same as Camellias.

I am, Sir,

Your most obedient humble servant,

Bicton, May 3, 1829. THOMAS BLAKE.

XII. *Some remarks upon the Cultivation of the Strawberry. In a Letter to the Assistant Secretary. By Mr.* John Fairbairn, *F. H. S.*

Read June 1, 1830.

Sir,

As this is a time for the Strawberry going out of flower and forming its fruit, I should feel very much obliged by your giving the following mode, which I have tried for the last three years with the greatest success, publicity to the horticultural world.

After the fruit is set I stir the surface pretty freely, and put on an inch or an inch and a half of well fermented dung, and in case of dry weather I give an abundant watering upon the dung or compost. I then immediately lay down flat tiles, with a circle, at least a half circle out of each tile, the surface of which I have painted black for containing the greatest portion of heat. In the culture of Strawberry plants I have discovered no mode so extremely advantageous to the grower, and productive of such delicious fruit, after numberless experiments, as the above simple but efficacious method.

First make your beds of light soil, with a small portion of fine bark of the oak, and put in your plants in the usual way, only observing to make the tiles cover the whole of the bed or pavement. You will find the night dews will be gathered by each leaf and stem, and the tiles during the day will not only prevent the exhalation of moisture from the soil, but also collect a great body of heat from the sun, and consequently form the fruit early, large, and well flavoured as well as clean from sand.

I am, Sir, your most obedient servant,

John Fairbairn.

Shaftesbury,
May 22, 1830.

XIII. *Upon the Cultivation of the Persian Varieties of the Melon. By* Thomas Andrew Knight, *Esq. F. R. S. President.*

Read May 1, 1831.

I sent to the Horticultural Society, in the last season, a couple of Ispahan Melons; one in August, which, I had the pleasure to hear was thought very excellent: and the other (which did not ripen till the latter end of October) not more inferior than might have been anticipated, on account of the diminished powers of the sun in the latter period. Both were the produce of very ill-treated plants: but both had the advantages of very excellent machinery; and the effects of the management were so singular, that a statement of them may prove alike interesting to the mere practical, and to the physiological, horticulturist.

Having, during several years, observed, that fine Persian Melons were preferred at my table to almost every other species of fruit, I was led to erect, early in the last spring, a small forcing house for the almost exclusive culture of them; and by means of heat obtained from fire only, under an impression that in some seasons, and states of the weather, the power of commanding a dry atmosphere, and high temperature, would prove highly beneficial to the quality of the fruit. This forcing house consists of a back wall nearly nine feet high, and of a front wall nearly six feet high, enclosing a horizontal space of nine feet wide; and the house is thirty feet long. It might as well have been forty feet long; but the smaller size was sufficient for my purpose. The fire place is at the east end, very near the front wall, and the flue passes to the other end of the house within four inches of the front wall, and returns back again,

leaving a space of eight inches only between the advancing and returning course of it; and the smoke escapes at the north east corner of the building. The front flue is composed of bricks laid flat, as I wished to have a temperate permanent heat, and the returning flue of bricks standing on their edges, as is usual; the space between the flues is filled with fragments of burned bricks, which absorb much water, and gradually give out moisture to the air of the house. Air is admitted through apertures in the front wall, which are four inches wide, and nearly three in height; and which are situated level with the top of the flues, and are eighteen inches distant from each other. The air escapes through similar apertures near the top of the back wall. These apertures are left open, or partially, or wholly closed, as circumstances require. Thirty two pots are placed upon the flues described above, each being sixteen inches wide at least, and fourteen inches deep; but they are raised by an intervening piece of stone and brick out of actual contact with the flues. Into each of these pots one Melon plant is put, which in its subsequent growth is trained upon a trellis, placed about fourteen inches distant from the glass, and each plant is permitted to bear one Melon only. Each might be made to bear more, but if they should be as large as Ispahan Melons when perfect are, they would certainly be of inferior quality. The height from the ground, at which the trellis is placed, is such that I can with convenience walk under it, and of course discover, without difficulty the first appearance of red spiders, or other noxious insects.

When I left the country to come to London in the last spring, my plants were growing most luxuriantly; and their appearance was every thing that I wished to be. But during my absence a few red spiders appeared upon one of the plants, as I had anticipated, and my gardener, in consequence, and in obedience to my instructions, sprinkled the under surfaces of the leaves frequently,

and rather freely, with water. By these measures the increase and spreading of the red spider, was effectually prevented; but on my return from London, I found that my plants had wholly ceased to grow, though their appearance was healthy; and subsequently all the fruit dropped off either before or soon after their blossom had expanded. I in consequence immediately ordered other plants to be raised, still, however, entertaining hopes of preserving those I had. But those hopes were not realized; and I was obliged to throw away the whole of them, with the exception of one, which was more healthy than the others, and which lived to produce the first fruit sent to the Society. That appeared to be, as it proved, of good quality; but it was defective in size, its weight seemed little, if any thing, more than five pounds.

My second family of plants were treated nearly, as the first had been, and with the same approaching results: but I was led by the discoveries of M. Dutrochet to change my mode of management; and I believe, to discover the cause of the preceding failure. This eminent physiologist had discovered that if a lighter fluid be in contact with one side of an animal, or vegetable membrane, and a denser fluid with the opposite side, the lighter fluid will rush into the denser, through the membrane, though that be under other circumstances impervious to it. The force with which the lighter fluid, in some of the experiments of M. Dutrochet, rushed through animal membranes into the denser, appears to be exceedingly wonderful. He found, that under such circumstances water would pass upwards through three folds of the substances of a recently extracted animal bladder, and in opposition to the perpendicular pressure of forty-five inches of quick-silver; which is nearly equivalent to a pressure of twenty-two and a half pounds upon a square inch of surface. This power in vegetable membranes to transmit the lighter into the denser fluid is, I think, probably in active operation during the ascent of the sap of trees in the spring; for

it is through the cellular substance, and not through the tubes of the alburnum, that the sap ascends, or its ascent would be prevented, which it is not, by intersection of those tubes, and those tubes are also dry at Midsummer, when the sap is rising to supply moisture to the leaves in great abundance; previously to the discoveries of M. Dutrochet, I had shown that the sap of trees is lightest, or least dense, near the ground; and that in any particular tree, the weight of the sap increases as its distance from the ground through the course of the alburnum increases: and I had also proved that saccharine matter exists in considerable quantity in the sap in the spring, in cases where no vestige of it can be discovered in winter: and sugar was the material employed by M. Dutrochet to form his denser fluid. These facts were not in any degree known to M. Dutrochet, when he made his discoveries, and he therefore was certainly not led in any degree by me in making them.

The sap in the leaves of my Melon plants, was certainly a denser fluid than the water with which they were sprinkled, and therefore, I imagine, that the latter fluid, passed in injurious excess into the cells and vessels, and that the ingress and circulation of the proper fluid, which ought to have continued to ascend from roots was to a great extent prevented; and that the creation of the true, or living sap of the plant almost wholly ceased. The plant consequently, I conclude, ceased to grow, and the fruit fell off, owing to want of proper nutriment; soon after I had ceased to sprinkle the under surfaces of the leaves, the young fruit began to set well, and the plants to grow; but never with very great vigour; and the fruit, though its quality was exceedingly good, was smaller a good deal than I conceived it would have been, if the under sides of the leaves had not been so frequently wetted. The weather was, however, very unfavourable, and the fruit, I entertain no doubt, would have been larger, if the foliage of these plants had received

the benefit of more light. I have mentioned in a former communication upon the culture of the Melon, that a single Melon, or Gourd, will put in requisition, during the period of its rapid growth, the services of the most distant leaf, and cause the most distant blossom to fall off abortively. But I was, at that period, wholly unprepared to offer any conjecture whatever respecting the power by which the sap generated in very distant leaves could be conveyed to the extent indicated to the fruit.

The above mentioned discoveries of M. Dutrochet appear to me to have thrown some light upon this mysterious point, for if the fluid within the fruit be denser than that in the leaves and stems, (and in certain states at least of the growth of the fruit it certainly is so) the lighter fluid must rush into the denser; and that the sap flows in very large quantity into the growing Melon, can I think scarcely be doubted. I am well satisfied that a very large quantity of the sap of the plant, or more properly of the aqueous part of that fluid, passes through the fruit into the vessels of the plant again; but by what means it can be propelled, I am wholly at a loss to conjecture. Much must, I conceive, be done by some operation of the fruit itself, for it is totally absurd to suppose that a distant leaf can by any mode of action properly its own cause the true sap, which it generates, to flow to, and into, the fruit. Previously to the maturity of my late crop of Melons, I had prepared some strong Cucumber plants, which I had protected from the frost; and these being brought into the place, whence the Melon plants had been taken, afforded me a crop of fine Cucumbers in November and December. I have now Cucumber plants growing in great health and vigour, from which I do not entertain any doubt of obtaining an abundant crop of Cucumbers in March and the beginning of April, when, it is my intention to introduce strong Ispahan Melon plants; and I feel confident that by having a proper plant ready to supply the place of every one which affords a ripe fruit, I shall

be able to obtain two abundant crops of excellent Melons within the same season.* If these expectations should prove to be well founded, I conceive that forcing houses, such as I have described, for the culture of very early Cucumbers and Persian Melons, might be erected with advantage in those districts in which coals are raised; for the dust of coals is all that is wanted, and in fact is preferable, and Cucumbers can be sent to a very considerable distance without suffering much, and Melons without suffering any deterioration.

The best varieties of Persian Melons are, I believe, very subject to burst when raised in this country; and I imagine that they very frequently do so in their native country; for Sir Harford Jones Bridges informed me, that he had heard the Persian Gardeners express fear when a horse was ridden at a rapid pace near the Melon beds, that the vibration of the soil would cause the Melons to burst. It occurred to me in the last summer, that Melons might possibly be made more safe from accidents of this kind, if I raised their points higher than their stems, and thus caused gravitation, which operates very powerfully upon the form and growth of plants, to assist in carrying away any excess of fluid, which the fruit, from any cause, might happen, at any period, to contain. I consequently gave to every Melon an elevation of thirty degrees, and not one of those failed to ripen in a whole and perfect state; but whether owing to any action of gravitation or not, I am, of course, unprepared to decide: the experiment, however, appears worth repeating. I suspect Melons frequently burst owing to the injurious effects of the pressure of their weight upon their lower sides; for when I have suffered them to hang down perpendicularly, they have always ripened well, but the Ispahan Melons, under such circumstances, assumed forms nearly similar to those of Cucumbers swollen at their points, and such forms are to my eyes very unpleasing.

* I shall obtain three successions in the present season.

XIV. *On the Cultivation of the Horse Radish, as practised in Denmark and Germany. In a Letter to the Secretary. By Mr.* Jens Peter Petersen.

Read November 6, 1827.

Sir,

The Horse Radish delights in a good rich and moist loam, and rather a shaded situation. The ground must be trenched and manured the year before planting. In the autumn when the old roots are taken out of the ground, select all the small side roots from nine to twelve inches in length, and as thick as a quill or thereabouts; tie them in bunches, and preserve them in sand in a place protected from the frost during the winter. The planting is commenced in the beginning or middle of April. In dry weather divide the ground into beds four feet wide; (some make them only three feet wide). These beds are with me raised a little with the mould out of the alleys, so that they are about a couple of inches higher in the middle than on the sides next the alleys. With a woollen cloth rub off all the lateral fibres from the roots above described; and also pare off each extremity so that the wounds may be fresh, then plant them by inserting them horizontally into the sides of the elevated beds, about a foot apart, and in a quincuncial manner, so that the bottom part of the root is about six or seven inches below the surface, and the top or crown end of the root stands a little out of the side of the bed, remarking that the roots are to be inclined a little, so that their lower extremity is rather deeper than their upper.

In the latter end of June or sometime in July, take and cut off with a sharp knife all the lateral fibres of each root which is done

by placing the foot on the lower extremity, and carefully lifting the root out of the ground as far as may be necessary. This operation is performed two or three times every summer. When the operation is over, replace the roots as before, and cover them with mould. The roots or fibres which are left at the end of the main root and not disturbed (for the operation must be done carefully) are sufficient to nourish the plant. In the third year the roots have attained their full size. Laying the roots horizontally has the advantage that they are easily taken out of the ground without breaking; while cutting off the side roots, makes the main root grow strait and thick. It is advisable to plant a bed every year. To keep the ground clear of weeds need not be mentioned.

I remain,

Sir, with the greatest respect,

Your most obedient humble servant,

JENS PETER PETERSEN.

Copenhagen, September 9, 1827.

XV. *On the Potatoe. By* Thomas Andrew Knight, *Esq. F. R. S. President.*

Read February 1, 1831.

If the Potatoe could only be employed, as it has chiefly been, to afford vegetable food to mankind, its improvement would be an exceedingly important object; for, circumstanced as this country is, it must necessarily constitute a large part of the food of the poorer classes; and it is consumed in large quantities at the tables of the affluent and luxurious. But I am convinced by the evidence of experiments, which I have been some years in making, that the Potatoe plant, under proper management, is capable of causing to be brought to market a much greater weight of vegetable food, from any given extent of ground, than any other plant which we possess, with equal profit to the farmer. The Swedish Turnip may, in certain seasons and when the soil is favorable, rival, and perhaps excel it; but a total failure of crops of that plant is an event of no unfrequent occurrence, and partial failures occur in almost every season; whilst by proper culture, and selection of varieties which vegetate and acquire maturity in successive parts of summer and autumn, there is not any crop which I conceive to be so certain as that of Potatoes; and it has the advantage of being generally most abundant, when the crops of wheat are defective, that is in wet seasons.* And, I think, I shall be able to

* Failures of crops of Potatoes occur in Ireland, because the excessive poverty of the peasantry compels them to plant their ground generally with less than one fifth of the proper quantity of Potatoes; and all the Irish varieties, which I have seen, have been unproductive, though generally of exceedingly good quality; the Irish mode of culture is also, I have reason to believe, excessively bad.

adduce some strong facts in support of my opinion, that by a greatly extended culture of the Potatoe, for the purpose of supplying the markets with vegetable food, a more abundant and more wholesome supply of food, for the use of the labouring classes of society may be obtained than wheat can ever afford; and I believe of a more palatable kind to the greater number of persons. I can just recollect the time when the Potatoe was unknown to the peasantry of Herefordshire, whose gardens were then almost exclusively occupied by different varieties of the cabbage. Their food at that period chiefly consisted of bread and cheese, with the produce of their gardens, and tea was unknown to them. About sixty-six years ago, before the Potatoe was introduced into their gardens, agues had been so exceedingly prevalent, that the periods in which they, or their families, had been afflicted with that disorder, were the eras to which I usually heard them refer in speaking of past events; and I recollect being cautioned by them frequently not to stand exposed to the sun in May, lest I should get an ague. The Potatoe was then cultivated in small quantities in the gardens of gentlemen; but it was not thought to afford wholesome nutriment, and was supposed by many to possess deleterious qualities. The prejudices of all parties, however, disappeared so rapidly that within ten years the Potatoe had almost wholly driven the cabbage from the garden of the cottagers. Within the same period, ague, the previously prevalent disease of the country, disappeared; and no other species of disease became prevalent. I adduce this fact, as evidence only, that the introduction of the Potatoe was not injurious to the health of the peasantry at that period; but whether its production was, or was not, instrumental in causing the disappearance of ague, I will not venture to give an opinion. I am, however, confident, that neither draining the soil, (for that was not done) nor any change in the general habits of the peasantry, had taken place, to which their improved health could be attributed.

Bread is well known to constitute the chief food of the French peasantry. They are a very temperate race of men; and they possess the advantages of a very fine and dry climate. Yet the duration of life amongst them is very short, scarcely exceeding two thirds of the average duration of life in England; and in some districts much less. Dr. Hawkins in his Medical Statistics, states upon the authority of M. Villerme, that in the department of Indre, "one fourth of the children born die within the first year, and half between fifteen and twenty, and that three fourths are dead within the space of fifty years." Having enquired of a very eminent French Physiologist, M. Dutrochet, who is resident in the department of Indre, the cause of this extraordinary mortality, he stated it to be their food, which consisted chiefly of bread; and of which he calculated every adult peasant to eat two pounds a day. And he added, without having received any leading question from me, or, in any degree, knowing my opinion upon the subject, that if the peasantry of his country would substitute (which they could do) a small quantity of animal food with potatoes instead of so much bread, they would live much longer, and with much better health. I am inclined to pay much deference to M. Dutrochet's opinion; for he combines the advantages of a regular medical education with great acuteness of mind, and I believe him to be as well acquainted with the general laws of organic life, as any person living: and I think his opinion deserves some support from the well known fact, that the duration of human life has been much greater in England during the last sixty years than in the preceding period of the same duration. Bread made of wheat, when taken in large quantities, has probably, more than any other article of food in use in this country, the effect of over loading the alimentary canal; and the general practice of the French Physicians points out the prevalence of diseases thence arising, amongst their patients.

I do not, however, think or mean to say, that Potatoes alone are proper food for any human being: but I feel confident, that four ounces of meat, with as large a quantity of good Potatoes, as would wholly take away the sensation of hunger, would afford, during twenty-four hours, more efficient nutriment, than could be derived from bread in any quantity, and might be obtained at much less expense.

I now proceed to give an account of the result of the experiment above-mentioned, which, I hope, will be found sufficiently interesting to attract the attention of the Members of this Society. It has been proved by many other persons, as well as by myself, that if all the blossoms of a potatoe plant be picked off, as soon as they become visible, the quantity of tubers will be considerably increased, particularly if the variety be one which produces seeds; and I have shown that the cause why early varieties of the Potatoe do not afford blossoms is the preternaturally early disposition of the plant to generate its tuberous roots. The early varieties are of dwarfish growth, and therefore improper for extensive field culture; but I have found that, by cross breeding between those, and varieties of tall and luxuriant growth, I can communicate to the latter the habit of producing tubers only, without blossom; with, I have reason to hope, considerable advantages. I now possess a good many of such varieties, selected from a very great number, which prove totally worthless; but many of those varieties which do not produce blossom, have other defects, which render them of little value. The stems of some of these are not strong and rigid enough to support themselves and their foliage; and they are consequently beaten down by rain and winds. The foliage of one stem consequently often becomes so placed as to shade the foliage of another; and as the whole material of the tubers is formed of living matter, which is generated in the leaves only, and as all

leaves, which are shaded, become inefficient and useless, a sufficient degree of strength and rigidity in the stems to enable them to retain their foliage in its first position is very important; though I believe that this circumstance has not hitherto attracted the attention of any cultivator of the Potatoe.

The tubers of other varieties, which were in all other respects apparently good, were defective in specific gravity; and consequently aqueous and worthless; and in others, veins of a red colour extended into the body of the tubers, and gave an unpleasant colour to their meal, which was in some other respects of very good quality. But I have obtained several varieties, which do not blossom, and which are as far as I am at present capable of judging, without any particular defect, though I am far from thinking I possess any variety, which has even approximated to the greatest state of perfection, which the species is capable of attaining.

I have succeeded in obtaining, as I wished, some varieties which vegetate early, and others late, in the spring. Those of the first mentioned habit will generally be found to afford the largest produce by having the advantages of a longer summer, but it is desirable to possess varieties of less excitable habits: because such usually remain good till a later period in the spring; when good vegetables are not always readily obtainable. I have also succeeded in obtaining varieties which do not vegetate till late in the spring, and which nevertheless acquire perfect or rather early maturity in autumn, and there are probably climates in which such varieties would be peculiarly valuable; and the ductility, and obedience, of this species of plant to human will is so great, that I doubt whether by the creation and selection of proper varieties, as abundant a produce might not be obtained, within the limits of the frigid zone, as in the torrid zone, of which the Potatoe is a native. The weather in some parts of the coast of Norway, within the

limits of the frigid zone, is very warm and bright during a period, which I believe to be quite long enough to ripen any early variety of the Potatoe perfectly.

It is my wish to send in the spring one or two Potatoes of each of the varieties, which I think likely to prove valuable; and I shall be happy subsequently to send a quantity of any, which may be approved.

In raising varieties of the Potatoe from seeds, it is always expedient to use artificial heat. I have trained up a young seedling plant in a somewhat shaded situation in the stove, till it has been between four and five feet high, and then removed it to the open ground in the beginning of May, covering its stem during almost its whole length lightly with mould, and by such means I have obtained, within the first year, nearly a peck of Potatoes from a single plant. But I usually sow the seeds in a hot-bed early in March, and, after having given them one transplantation in the hot-bed, I have gradually exposed them to the open air, and planted them out in the middle of May: and by immersing their stems rather deeply into the ground, I have within the same season usually seen each variety in such a state of maturity as has enabled me to judge, with a good deal of accuracy, respecting its future merits.

I stated in a former communication two years ago, that I had obtained from a small plantation of the early ash-leaved Kidney Potatoe, a produce equivalent to that of six hundred and sixty-five bushels, of eighty pounds each, per acre; and my crop of that variety, in the present year, was to a small extent greater. By a mistake of my workmen I was prevented ascertaining, with accuracy, the produce per acre of a plantation of LANKMAN's Potatoe: but one of my friends having made a plantation of that variety precisely in conformity with the instructions given in my former

communication to this Society, I requested that he would send me an accurate account of the produce; which I have reason to believe he did, for its amount very nearly agreed with my calculation upon viewing the growing crop about six weeks before it was collected. The situation, in which this crop grew, was high and cold, and the ground was not rich, but the part where the Potatoes to be weighed were selected, was perfectly dry, and afforded a much better crop, than the remainder of the field; which was planted with several different varieties. I calculated the produce of the selected part to be six hundred bushels per acre, and the report I received, and which I believe to have been perfectly accurate, stated it to be six hundred and twenty-eight. If this produce be eaten by hogs, or cows, or sheep, (for all are equally fond of Potatoes) I entertain no doubt whatever, that it will afford twenty times as much animal food, as the same extent of the same ground would have yielded in permanent pasture; and I am perfectly satisfied upon the evidence of facts which I have recently ascertained that if the whole of the manure afforded by the crops of Potatoes above-mentioned be returned to the field, it will be capable of affording as good, and even a better, crop in the present year, than it did in the last; and that as long a succession of at least equally good crops might be obtained as the cultivator might choose, and with benefit to the soil of the field. Should this conclusion prove correct, a very interesting question arises: viz. whether the spade husbandry might not be introduced upon a few acres of ground surrounding, on all sides, the cottages of day labourers, to, and from, every part of which the manure and the produce might be conveyed without the necessity of a horse being ever employed. A single man might easily manage four statute acres thus situated, with the assistance of his family: and if nothing were taken away from the ground

except animal food, I feel confident that the ground might be made to become gradually more and more productive, with great benefit to the possessor of the soil, and to the labouring classes, wherever the supply is found to exceed the demand for labour.

XVI. *On a Method of forcing Cherries. In a Letter to the Secretary. By Mr.* Benjamin Law.

Read June 1, 1830.

Sir,

As my method of forcing Cherries is attended with greater success than any other with which I am acquainted, I take the liberty of submitting the following account of it to the Society.

I put the Cherry-trees into my houses, giving them but very little water at the close of the year, by which I find them better prepared for blooming strongly in the spring. Their pots have a capacity of from two quarts to two gallons, according to the size of the plants; but the soil in which they are planted is by no means rich, for I have observed that highly manured soil is apt to make the shoots too luxuriant, and to cause them to gum. When I begin to force I continue to water but sparingly, and take care to admit, both by night as well as by day, as much air as the weather will permit; this is particularly necessary, for there is nothing which is so much calculated to render the Cherry impatient of forcing, as alternate ventilation in the day and confinement at night. I open my back lights in almost any weather close to the trees. In frosty weather I increase my fire as much as may be necessary to enable me to continue to give air without actually allowing the temperature to fall to 32°. In this manner I proceed very slowly, until the blossoms are all set; at which time if the forcing has been well conducted, the foliage should be a deep green, firm and perfectly well formed. I subsequently raise the temperature at first to 65°, and afterwards gradually to 70°, increasing the moisture of the atmosphere at the same time, and

always taking care to keep the ventilation as abundant as I possibly can. By this means I find the crop of Cherries certain and abundant, without the use of tan, leaves or any bottom heat.

I remain, Sir,

Your obedient servant,

Northampton,
May 31, 1830.

BENJAMIN LAW.

XVII. *A Report upon some new seedling Pears raised by* Thomas Andrew Knight, *Esq. F. R. S. President. With remarks upon their respective qualities.*

Read March 15, 1831.

The Pears which are the subject of the following report, are seedlings raised by Mr. Knight. The descriptions were made in the Garden of the Society from specimens examined in 1827, 1828 and 1830. The remarks have been added by Mr. Knight.

Garnon's Pear.

Fruit large, somewhat irregular, increasing beyond the middle, and from thence diminishing towards the eye, which is in a shallow depression or nearly level. The skin is yellowish upon a wall, but remains long green if grown upon a standard. In size it resembles a winter Bon Chretien, but the quality of the latter is not by any means to be compared with it. Flesh yellowish, juicy, melting and rich. A very excellent Pear. Season, January.

I have seen this Pear, the produce of the original seedling tree, in each of the last five years; and its merits have appeared to me to be, in all seasons, above mediocrity. Of its good qualities, as a wall Pear, I am wholly ignorant, having sent the two, produced by a graft inserted into a tree upon my south wall here, in the last season to the Horticultural Society; but the report is more favorable than I had anticipated, after such a season. The trees grow well and bear very freely, and at an early age.

Foxley Pear.

Yellowish brown, rather gritty, but extremely pleasant and rather high-flavoured. Vinous like the Galston Moor-fowl Egg. Season, November.

The description above given of this variety, corresponds very accurately with my notes upon it. I believe that if it were ground and pressed, it would afford a finer liquor than ever has yet been obtained from the Pear, or Apple.

Rouse Lench Pear. Plate 2, fig. 3.

Skin pale green, a good deal spotted and tinged with russet. Flesh firm, rather buttery, yellowish, rather gritty, but juicy and high flavoured. A capital Pear, between breaking and buttery. Season, January.

I have never seen this Pear in a perfect state to be brought to table till the month of January. Its flesh, when it is perfectly ripe, is not, in any degree, breaking; but in every other respect the description above given of it is very accurate. I have had some Pears of this variety, which have weighed between nine and ten ounces, though they were the produce of a young seedling tree, very heavily loaded with fruit. The original tree has been exceedingly productive of fruit. I should think the variety more valuable, if it were less productive; for the tree has often borne more than it has been capable of nourishing properly; and in the last year it had as many Pears, all totally worthless, as it had leaves, or nearly so. The fruit adheres so firmly to the tree, that I have never seen one blown off by the wind; and I think it, taking its aggregate merits, the best Pear for the market, which I possess. I annex a very accurate drawing of one, which points out the peculiarity of the form of the variety. A large number of these Pears will stand on their heads, like nine pins, which they much resemble in form.

Downton Pear. Plate 2, fig. 1.

Very like a Passe Colmar. Skin yellowish cinnamon colour, with a very little red on one side. Flesh yellow, juicy, rich and excellent. Season, November.

1. The Downton Pear.—

2. The Eastnor Castle Pear.

3. The Rouse Lench Pear.

4. The Monarch Pear.—

It is a very small Pear, compared with the Passe Colmar grown upon a south wall, on which alone the Passe Colmar will succeed in this vicinity, and then only in fine seasons. The Downton Pear usually becomes yellow early in December, at which period an estimate of its merits appears to have been formed; but its proper season is February; and I have seen it in high perfection in the last week in April, and then still retaining a degree of freshness in its taste, which is almost peculiar to it. I have many grafted trees of this variety, which have borne very freely the third year after having been grafted, though placed in cold and unfavourable situations; and the form assumed by all the trees, which I have seen, is very perfect, and their growth very rapid. I think that the comparative merits of the fruit have been rather underrated; and that its smallness is its chief defect. It possesses one good property, which many varieties do not possess; its flesh becomes soft and melting, though it be gathered whilst immature; and under such circumstances its juice is very sweet, though it continues somewhat astringent. I annex a drawing of this variety, which represents it of the largest size, which it has yet been seen to attain on a standard tree.

Wormsley Grange.

Very cylindrical. Skin cinnamon colour, with a pale speckling. Flesh yellow, melting, very juicy, sweet and rich; in perfection in the end of October, and as good as a Chaumontel which it is very like.

The merits of this Pear have appeared to me to be more affected by more or less favourable seasons than those of some others. It ripens early, and if suffered to remain late upon the tree in warm seasons, it will acquire a deep yellow colour, and become mealy in some degree. But when it has been gathered in proper time, and in a favourable season, it has proved most excellent. The sample sent to London was not a good one.

Belmont.

Pale dull yellow, speckled with brown, the ground colour very much that of a Blanquet. Flesh melting, rather gritty, sweet and good. Probably an excellent variety. Season, early in November.

I first saw this variety in the autumn of 1829; when the tree produced a very heavy crop of fruit of large size; many of which proved to be in my estimation very excellent. The tree bore again in the succeeding year so heavy a crop, that I thought it necessary to have a large part of it taken off. The whole of the remainder was stolen, though I caused, or rather meant to cause, the nursery to be carefully watched.

Althorp Crassane.

This has much the appearance of the Crassane. The skin is of the same colour and texture; the flesh is less gritty, and the flavour good. The best description that can be given of it is, that it possesses all the richness of the Crassane with less grittiness, being perfectly melting. Season, November.

The last season was the first of the existence of this variety, the merits of which appeared to me to be such as are above described. Two Pears of this variety were brought to me on the 18th of August last, when they were not nearly full grown, and one of them, having been accidentally preserved, was found in the end of September, to have become soft, sweet and melting; and it would have been generally pronounced a good Pear in any season. Its size was fully as great as that attained by the Crassane in this vicinity.

Monarch. Plate II. fig. 4.

Fruit middle-sized, obovate; stalk short, rather thick; eye open, placed in a shallow depression. Skin yellowish, much speckled with brown, and having a tinge of brownish red next the sun. Flesh yellowish, melting, buttery, rich and sugary; slightly musky but not disagreeably so. An excellent Pear. Season, January.

Two Pears of this variety, having been incidentally preserved with the one above-mentioned, became like it, soft, sweet and melt-

ing in the beginning of October; and I should then have pronounced those very excellent Pears under any circumstances. I did not gather the remainder till after the middle of October, when many of the Pears had become yellow upon the tree; and those, I imagined, would soon become mealy, and consequently worthless; as Pears generally do, which are suffered to become perfectly ripe before they are gathered. I consequently sent to the Society those only which were less mature; but I subsequently found that those, which had become most mature and yellow upon the tree, did not shew the least disposition to become mealy, and were much better than the others. I am therefore inclined to believe that the comparative merits of this variety have been rather underrated. I named it the Monarch under conviction that, for the climate of England, it stands without an equal; and because it first appeared in the first year of the reign of our most excellent Monarch. I send a drawing which presents very accurately the size, form and colour of the largest and best sample which I possessed. I kept a couple of Pears of this variety, till the beginning of February, at which period they still retained their good qualities. The young wood of this variety is very thorny; and the whole character of the tree is wild and uncultivated.

Eastnor Castle. Plate II. fig. 2.

An ugly brown shrivelly Pear, with scarcely any green. It is quite round. Stalk long and strong. Good. Season, December.

The above description of this Pear is very accurate, I think. I obtained a considerable number of them in the last autumn, which was the first of the existence of the variety. The greater part ripened in December, and some of those I thought very excellent. A few still remained, little changed in external character, till the middle of February, but not retaining all their good qualities, though still possessing considerable merit. I send a drawing of it, which represents its ordinary size.

The Winter Crassane.

Fruit large, irregularly turbinate, with a very hollow eye. Stalk thickened, and a little sunk at its insertion. Skin greenish yellow intermixed with brown, and some patches of cinnamon russet. Flesh inclining to yellowish white, melting, quite buttery, with very little grittiness even at the core, rich, sugary and very excellent; it has a little of the Chaumontel flavour. This is without doubt a very valuable sort. Season, January.

The merits of this Pear did not appear to me to be so great as they are above represented; but I retained very inferior samples only of it; and its first appearance was in the last autumn. I have several times observed instances in which the large Crassane Pears were excellent in seasons when the small fruit upon the same tree was worthless; and as this Pear is, I think, obviously, the offspring of (the pollen of) a Crassane Pear, there appears a probability of similar want of excellence in the small fruit. The flesh of those, which I retained, was in all perfectly beurrée, sweet and melting, but I thought rather insipid, though better than any Crassane Pear, which I tasted in the last autumn. The gentlemen, who investigated the merits of the variety in London, had much better opportunities of judging rightly than I had, and were less likely to be partially favourable, than I may have been, and I therefore submit to their opinion. I thought it for the season, a good Pear, though inferior to the Monarch, the Althorp Crassane and the Eastnor Castle Pears, of the same season, and two others, of which I did not send samples. In weight it greatly exceeds those, and I entertain no doubt of its proving a valuable variety. The growth of the original tree of this variety is enormously rapid, and it blossoms very abundant in the present spring.

Whitfield.

Colour of a ripe Swan's-egg, rather less russety. Flesh melting, sweet and good, but dry. Not first rate. Season, November.

I first saw this variety in the year 1826, when I thought it very excellent. In the three following years it appeared to me to possess but little merit. In the last year, some of them were good; but I thought not nearly as good as they were in the year 1826. A light and dry soil would, I think, render this variety uniformly excellent; but I have seen it only where the tree has grown in a soil of a different kind.

The Pitfour Pear.

This is in size about twice that of the Swan's-egg, when grown in the same soil and climate; and in form it a good deal resembles the Colmar Pear. It ripens in October and November, and in the last season, the first in which it was produced, its flesh was perfectly melting, and its juice rich and sweet. I thought it an excellent Pear; but I did not discover its merits till it was too late to send a sample to the Society. I, in consequence, should not have noticed it at the present period, but that, having had occasion for some large grafts to insert into strong stocks, a great number of small branches were necessarily detached from the tree, and those were useless to me; and under these circumstances, I thought it better to send them, with the grafts of the other varieties, particularly, as the tree, having borne a heavy crop the last year, affords little blossom in the present.

The above described varieties of Pears are, I think, the best amongst those which the Society has seen, and the original trees of all grow with great luxuriance, and health; and as far as I have had opportunities of judging, they appear to me as hardy and as productive as their female parents. What the precise female parent of each of the above-mentioned varieties was, I am not prepared to say; but I believe that all with the exception of the Foxley Pear, and possibly the Monarch, sprang from seeds of the Swan's-egg. The Moor-fowl's Egg I believe to have been the female parent of

the Foxley Pear; and I doubt whether the Monarch do not descend from the Autumn Bergamot. Respecting the male parents of the greater part of them, it is useless to offer any conjecture, for owing to the circumstances under which experiments were made, as I have detailed in a former communication, many of them are probably the joint offspring of two or more male parents.

I possess several other varieties of first rate excellence, of which I hope to send in the present year samples to the Horticultural Society; and I have a great many others with which I know not what to do; they appear to be too good to be sacrificed before their merits, when grown in other soils and seasons, have been in some measure ascertained, and at the same time they are, comparatively with a few others, scarcely worth culture or preserving. I have also a large number of seedling trees, which having exercised my patience during more than twenty years, have not yet produced a blossom.

The soil in which the trees grow, which have afforded all the samples sent to the Horticultural Society, with the exception of a couple of Garnon's Pears, is very strong, and retentive, to an injurious extent, of water in such cold and wet seasons as the three last have been; and I therefore feel confident that many of them will be found in future periods to exhibit much greater degrees of excellence than they have hitherto been seen to possess. As varieties for culture as standard trees, I am quite satisfied by the evidence of experiments which I have made, that none of the Belgic, or French Pears, now cultivated in England, can compete with the best of them; and whether any of the imported varieties will, as wall fruit, be found to excel them, when all are given the same advantages, remains I think to be proved.

List of VOLUNTARY SUBSCRIPTIONS *to the* HORTICULTURAL SOCIETY, *from May* 1, 1830, *to May* 1, 1831.

Thomas Andrew Knight, Esq. (President)	£100	0	0
The Earl of Carnarvon, (Vice-President)	50	0	0
Edward Barnard, Esq. (Vice-President)	10	0	0
Peter Grant, Esq.	5	5	0
George Bentham, Esq. (Secretary)	5	5	0
Joseph Sabine, Esq.	5	5	0
The Comte de Vandes	5	0	0
Sir William Edward Rouse Boughton, Bart.	10	0	0
Alexander Henderson, M.D. (Vice-President)	5	5	0
Sir John S. Sebright, Bart. M.P.	5	0	0
Robert Gordon, Esq. M.P.	5	0	0
William Harrison, Esq.	5	0	0
Mr. John Andrew Henderson	8	0	0
Richard Horsman Solly, Esq.	5	0	0
Mr. John George Fuller	5	0	0
Robert Henry Jenkinson, Esq.	5	5	0
John Motteux, Esq.	10	0	0
Major General St. George	5	0	0
William Murray, Esq.	5	0	0
Sir Claude Scott, Bart. amount of Bonds cancelled with Interest to May 1, 1830	210	0	0

List of Subjects for which MEDALS *are offered by the* HORTICULTURAL SOCIETY *of* LONDON, *in the year commencing May* 1831, *and ending April* 1832.

The LARGE SILVER MEDAL for the most ornamental Hardy Plant that shall be exhibited before May 1, 1832.

The BANKSIAN MEDAL for the second best exhibition of the same kind.

The BANKSIAN MEDAL for the best exhibition of

Roses on the	2nd Meeting in	June.
Ditto	2nd	September.
Camellias	1st	April.
Dahlias	1st	September.
Melons	1st	July.
Pines	2nd	July.
Ditto	1st	February.
Grapes	1st	June.
Ditto	2nd	September.
Rhododendrons	2nd	May.
Azaleas	1st	June.

In making the foregoing selection of subjects for exhibition, the Council reserve to themselves the right of withholding an award in case the exhibition should not prove sufficiently important to deserve one.

They will also continue to award Medals for any other exhibition that may be considered deserving of such a mark of distinction.

List of MEDALS *awarded at the* EXHIBITION OF FRUIT *in the* HORTICULTURAL SOCIETY'S GARDEN, *June* 22*nd*, 1831.

LARGE SILVER MEDALS.

To Mr. WILLIAM DEAS, Gardener to His Grace the Duke of NORFOLK at Arundel Castle, for a Collection of Pines, Melons, Figs, Peaches, and Nectarines.

To Mr. WILLIAM DOLBY, Gardener to J. J. GUEST, Esq., for four Queen Pines.

BANKSIAN MEDALS.

To Mr. JOSEPH PAXTON, Gardener to His Grace the Duke of DEVONSHIRE, at Chatsworth, for Pines, Peaches, Nectarines and Grapes.

To Mr. JOHN WILSON, Gardener to the Right Honourable the Earl of SURREY, Worksop Manor, for Grapes, Peaches and Nectarines.

To Mr. SELBY BENNETT, Gardener to the Right Honourable the Earl MANVERS, for a Providence Pine.

To Mr. JOHN BOWERS, Gardener to the Right Honourable the Lord SELSEY, Westdean House, for Nectarines and Grapes.

(Signed) HUGH RONALDS.
WILLIAM GREENSHIELDS.
JOSEPH WELLS.

TRANSACTIONS

OF THE

HORTICULTURAL SOCIETY

OF

LONDON.

SECOND SERIES.

VOLUME I.

ADVERTISEMENT.

THE Committee appointed by the Horticultural Society to direct the publication of the Papers read before them, take this opportunity to inform the Public, that the grounds of the choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them, without pretending to answer for the certainty of the facts, or the propriety of the reasonings, contained in the several Papers so published; which must still rest on the credit or judgment of their respective Authors.

It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

ADVERTISEMENT.

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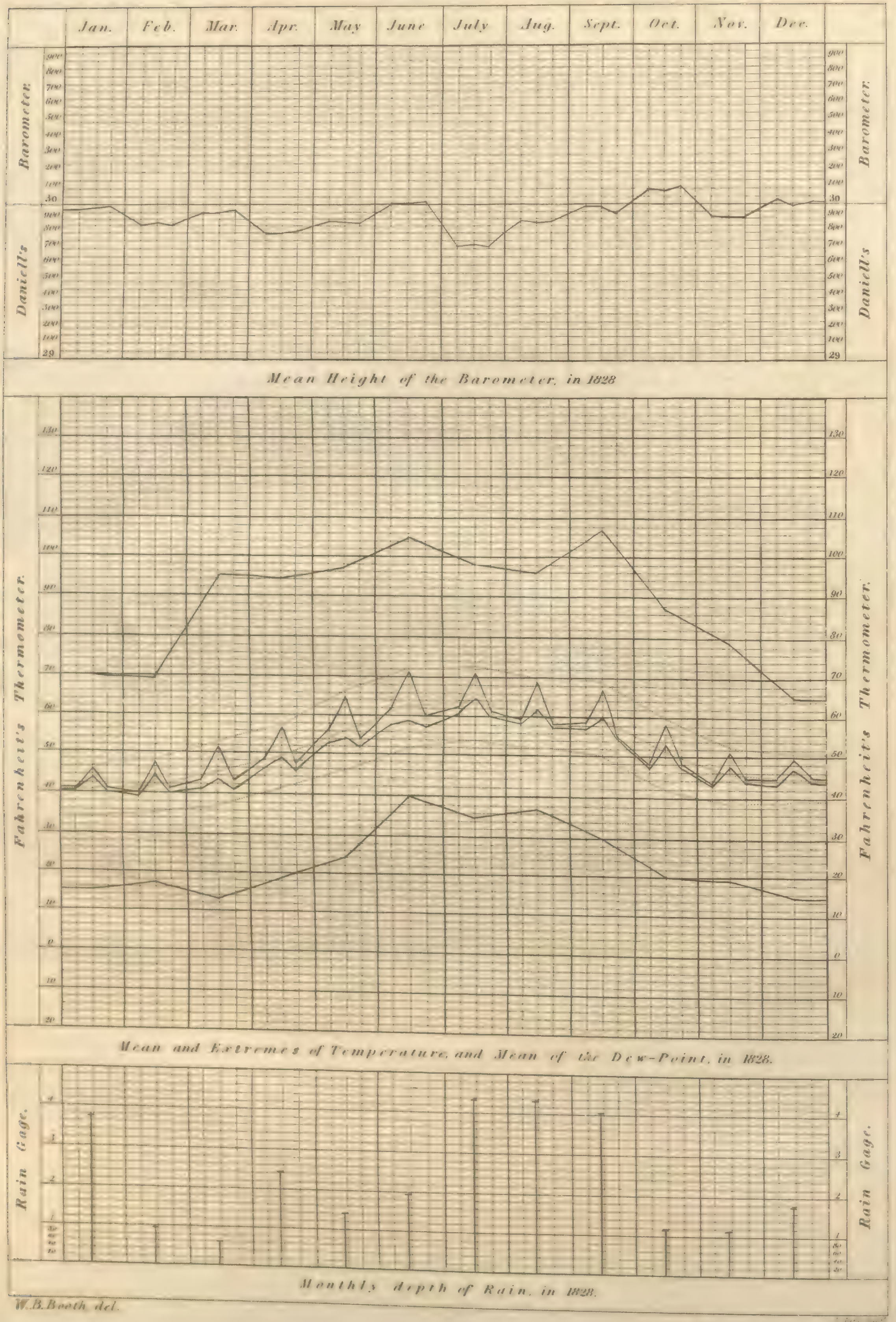

Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Barometer.
Daniell's
900
800
700
600
500
400
300
200
100
30
29
Mean Height of the Barometer, in 1828
Fahrenheit's Thermometer.
130
120
110
100
90
80
70
60
50
40
30
20
10
0
10
20
Mean and Extremes of Temperature, and Mean of the Dew-Point, in 1828.
Rain Gage.
4
3
2
1
Monthly depth of Rain, in 1828.
W.B.Booth del.

XVIII. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year* 1828. *By Mr.* William Beattie Booth, *A. L. S.*

This Journal has been kept in all respects upon the same plan as that for the year 1827, published in the seventh volume of the Transactions. An addition of the means of temperature has been made to the diagram, in which the upper dotted line represents the mean maximum, the lower the mean minimum temperature, and the middle line the mean of the two temperatures.

The latter corresponds with the statement of the *Mean Temperature of the External Air*, which is now given in addition to the results included under the monthly remarks, and which is deduced from the indications of the Registering Thermometers of the maximum and minimum temperature in the shade. The situation of these Thermometers is explained at page 103 of the volume above referred to.

JANUARY.

1828.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
T.	1	29.531	44	44	—	Rainy	29.419	46	46	—	Rainy	29.715	42	42	—	Stormy & Wet
○ W.	2	—.799	35	35	—	Cloudy	—.814	43	43	—	Cloudy	—.531	42	42	—	Ditto
Th.	3	—.469	44	43	1	Fine	—.534	47	44	3	Fine	—.816	38	36	2	Clear & Fine
F.	4	—.832	32	32	—	Cloudy	—.733	42	42	—	Wet	—.668	37	37	—	Wet
S.	5	—.670	33	33	—	Ditto	—.666	36	36	—	Rain & Sleet	—.662	35	35	—	Sleet
S.	6	—.786	35	35	—	Ditto & Cold	—.832	36	34	2	Cloudy & Cold	—.958	32	31	1	Clear
M.	7	30.017	34	33	1	Ditto	30.022	35	34	1	Ditto	—.921	34	32	2	Cloudy & Cold
T.	8	29.923	34	30	4	Ditto	—.046	35	30	5	Ditto	30.076	35	32	3	Ditto
W.	9	30.044	33	30	3	Ditto	29.999	33	25	8	Ditto	29.946	27	24	3	Clear & Frosty
(Th.	10	29.740	29	25	4	Ditto	—.705	38	32	6	Ditto	—.649	30	28	2	Ditto
F.	11	—.645	33	33	—	Sleet	—.637	34	34	—	Ditto & Wet	—.667	36	36	—	Foggy & Wet
S.	12	—.657	40	40	—	Thick Fog	—.623	43	43	—	Foggy	—.592	42	42	—	Heavy Rain
S.	13	—.200	47	47	—	Stormy & Wet	—.322	48	48	—	Stormy & Wet	—.469	45	45	—	Stormy & Wet
M.	14	—.633	38	38	—	Showery	—.564	43	42	1	Showery	—.519	39	39	—	Wet
T.	15	—.797	37	37	—	Cloudy	—.805	37	37	—	Cold & Cloudy	—.820	34	34	—	Sleet
W.	16	—.795	34	34	—	Foggy	—.878	36	36	—	Stormy & Wet	—.921	36	36	—	Stormy & Wet
Th.	17	—.949	46	46	—	Wet	—.957	47	47	—	Ditto	30.063	50	50	—	Ditto
● F.	18	30.147	50	50	—	Ditto	30.173	55	55	—	Showery	—.181	50	50	—	Fair & Clear
S.	19	—.288	51	49	2	Fine	—.282	60	53	7	Very Fine	—.278	51	51	—	Cloudy
S.	20	—.286	51	50	1	Cloudy	—.284	56	50	6	Ditto	—.276	50	48	2	Ditto
M.	21	—.268	40	40	—	Dense Fog	—.292	51	47	4	Ditto	—.242	46	46	—	Ditto
T.	22	—.185	50	50	—	Showery	—.147	55	53	2	Fine	—.254	46	45	1	Fine
W.	23	—.268	47	47	—	Cloudy	—.351	55	52	3	Ditto	—.414	44	44	—	Hazy
Th.	24	—.383	43	43	—	Slight Fog	—.341	54	52	2	Cloudy	—.232	48	47	1	Clear
F.	25	—.153	48	48	—	Hazy	—.145	51	47	4	Fine	—.137	47	47	—	Cloudy
) S.	26	—.189	42	41	1	Fine	—.333	50	47	3	Ditto	—.399	46	45	1	Fine
S.	27	—.439	47	45	2	Ditto	—.507	53	48	5	Ditto	—.482	40	40	—	Cloudy
M.	28	—.451	40	40	—	Foggy	—.490	46	44	2	Cloudy	—.344	42	42	—	Ditto
T.	29	—.247	46	46	—	Ditto	—.243	49	45	4	Very Fine	—.184	37	37	—	Slight Fog
W.	30	—.119	40	40	—	Ditto	—.099	50	48	2	Ditto	—.049	36	36	—	Ditto
Th.	31	—.021	39	39	—	Wet	29.994	51	51	—	Wet	29.988	49	49	—	Slight Showers
		29.965	40.7	40.1	.6		29.975	45.6	43.4	2.2		29.982	40.8	40.2	.6	

JANUARY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	46	33	46	27	SW	Brisk		.70	The weather during this month was particularly mild, but very wet; the amount of rain which fell is upwards of two inches more than what is usually considered the average for this period of the year. Some snow fell on the 9th, 12th and 15th. From the 18th to the end of the month the weather was more favourable and the Barometer high.
2	45	43	45	40	——	Strong		.21	
3	49	31	56	24	S	Brisk			
4	42	30	42	24	——	Ditto		.35	
5	36	32	36	30	SW	Ditto			
6	36	28	36	20	S	Ditto			
7	35	30	36	27	SE	Stormy			
8	35	27	35	22	E	Brisk			
9	33	—24	42	—15	NE	Ditto			Mean Pressure from the 3 daily observations 29.974 inches.
10	38	25	45	20	——	Ditto			—— Temperature ..... Ditto ..... 42°.3
11	36	33	36	30	——	Little		.50	—— Dew Point ..... Ditto ..... 41°.2
12	43	40	43	38	SE	Ditto		.32	—— Degree of Dryness ... Ditto ..... 1°.1
13	48	35	48	29	S	Stormy		.20	—— Degree of Moisture .. Ditto 965
14	44	35	44	32	N	Brisk		.21	—— Force of Vapour .... Ditto ..... 0.292 inch.
15	37	32	37	30	NE	Ditto		.54	Least observed degree of Moisture 759
16	36	35	36	33	E	Ditto		.34	Maximum Temperature in the Shade .... 60°
17	50	45	50	42	——	Ditto		.10	Minimum Temperature in ditto ..... 24°
18	56	47	56	39	S	Little		.06	Maximum Temperature in the Sun ..... 70°
19	+60	47	+70	40	SW	Ditto			Minimum of Terrestrial Radiation ..... 15°
20	56	33	62	28	S	Ditto			Mean Temperature of external Air ..... 40.°5
21	55	40	65	35	SW	Brisk			
22	56	41	62	35	W	Ditto			WINDS.
23	55	40	63	36	——	Ditto			North.....1 day. | N. East.....4 days.
24	54	47	59	45	——	Ditto			South.....7 .. | S. East .....3 ..
25	51	39	57	34	——	Ditto			East.....3 .. | S. West.....8 ..
26	51	42	60	37	SW	Ditto			West .....5 .. | N. West.....0 ..
27	54	28	62	23	——	Little			31 days.
28	46	40	46	38	——	Ditto			
29	49	31	60	25	W	Ditto			Amount of Rain..... 3.71 inches.
30	52	30	63	25	S	Ditto			
31	51	48	51	45	SE	Ditto		.18	
	46	35	50.9	30.6				3.71	

FEBRUARY.

	1828.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
☉	F.	1	29.980	39	38	1	Fine	30.013	51	48	3	Fine	30.055	47	47	—	Foggy
	S.	2	30.087	40	40	—	Cloudy	—.146	49	47	2	Very Fine	—.188	45	45	—	Ditto
	S.	3	—.521	38	37	1	Fine	—.517	47	39	8	Ditto	—.232	39	38	1	Clear
	M.	4	—.297	40	40	—	Foggy	—.274	50	46	4	Cloudy	—.268	49	49	—	Cloudy
	T.	5	—.214	48	48	—	Cloudy	—.202	52	50	2	Ditto	—.190	47	47	—	Ditto
	W.	6	—.143	46	46	—	Slight Rain	—.074	54	53	1	Ditto	—.017	50	50	—	Ditto
	Th.	7	29.979	44	44	—	Thick Fog	29.955	51	50	1	Ditto	29.898	48	48	—	Rain
☾	F.	8	—.935	45	43	2	Fine	—.795	50	48	2	Ditto	—.721	36	35	1	Clear
	S.	9	—.730	38	38	—	Hazy	—.726	40	40	—	Slight Rain	—.738	36	36	—	Cloudy
	S.	10	—.857	35	35	—	Cold & Cloudy	—.794	38	31	7	Clear & Cold	—.800	33	32	1	Clear
	M.	11	—.542	33	33	—	Snow	—.665	34	34	—	Hazy wth snow	—.841	28	24	4	Clear & Cold
	T.	12	—.933	30	28	2	Fine	30.050	33	32	1	Cloudy	30.108	30	27	3	Ditto
	W.	13	30.185	32	28	4	Ditto	—.167	34	30	4	Fine	—.125	32	29	3	Ditto
	Th.	14	29.800	33	32	1	Cloudy	29.748	34	34	—	Sleet	29.538	33	33	—	Cloudy
●	F.	15	—.657	32	31	1	Fine	—.776	42	38	4	Very Fine	—.861	34	34	—	Ditto & Cold
	S.	16	—.932	30	28	2	Very Fine	—.903	44	40	4	Ditto	—.875	35	35	—	Cloudy
	S.	17	—.782	28	26	2	Fine	—.736	42	33	9	Ditto	—.618	29	27	2	Clear
	M.	18	—.433	32	32	—	Cloudy	—.418	46	43	3	Showery	—.400	34	34	—	Cloudy
	T.	19	—.362	40	38	2	Fine	—.380	52	46	6	Fine	—.414	39	39	—	Overcast
	W.	20	—.372	39	38	1	Ditto	—.302	55	50	5	Ditto	—.228	44	44	—	Slight Rain
	Th.	21	—.115	42	42	—	Cloudy	—.086	52	49	3	Ditto	—.048	45	45	—	Ditto
☽	F.	22	—.070	45	45	—	Wet	—.109	51	47	4	Cloudy	—.175	43	43	—	Cloudy
	S.	23	—.371	40	40	—	Ditto	—.403	42	42	—	Wet	—.561	40	40	—	Fine
	S.	24	—.838	44	41	3	Very Fine	—.852	48	43	5	Fine	—.858	47	47	—	Slight Rain
	M.	25	—.883	50	50	—	Overcast	—.900	53	53	—	Slight Rain	—.982	52	52	—	Cloudy
	T.	26	30.009	53	53	—	Slight Rain	30.051	58	56	2	Cloudy	30.073	52	51	1	Clear
	W.	27	—.161	58	57	1	Cloudy	—.260	60	56	4	Very Fine	—.211	50	50	—	Slight Fog
	Th.	28	—.330	48	48	—	Slight Fog	—.352	56	52	4	Ditto	—.336	42	40	2	Clear
	F.	29	—.309	40	40	—	Ditto	—.278	55	53	2	Drizzly	—.343	43	42	1	Fine
			29.856	40.	39.2	.8		29.859	47.3	44.2	3.1		29.851	40.7	40.1	.6	

FEBRUARY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	51	32	62	25	SW	Brisk			
2	49	35	53	28	W	Little			
3	48	37	61	30	——	Brisk			
4	53	46	54	40	——	Ditto			
5	52	45	58	44	SW	Little			
6	54	40	55	39	——	Ditto		.04	
7	51	40	53	35	W	Ditto		.28	
8	50	33	50	25	NW	Brisk			
9	41	34	43	28	——	Ditto		.06	
10	38	30	38	25	N	Ditto			
11	34	28	34	25	NE	Little		.14	
12	33	27	33	23	——	Ditto			
13	34	29	38	24	——	Brisk			
14	34	29	34	26	E	Ditto		.08	
15	42	—23	60	18	NW	Little			
16	44	25	64	—17	W	Ditto			
17	42	27	67	22	SE	Ditto			
18	46	31	52	25	S	Ditto		.18	
19	52	32	66	23	SE	Ditto			
20	55	40	+69	35	——	Brisk		.02	
21	52	38	68	34	E	Ditto		.03	
22	51	40	63	35	——	Little			
23	42	38	49	32	N	Brisk		.04	
24	49	45	60	45	NW	Little		.02	
25	53	48	60	45	S	Ditto		.—	
26	58	46	63	40	SE	Ditto		.05	
27	+60	40	66	32	S	Ditto			
28	56	38	64	32	NW	Ditto			
29	56	41	67	38	——	Brisk			
	47·5	35·7	55·3	30·7				·94	

The early part of this month the weather was mild and pleasant. On the night of the 10th and morning of the 11th snow fell to the depth of about 3 inches, and remained until the 14th. From this period to the end of the month the temperature advanced, and the weather though not very steady, was nevertheless seasonable.

Mean Pressure from the 3 daily observations 29.855 inches.
—— Temperature ..... Ditto ..... 42°.6
—— Dew Point ..... Ditto ..... 41°.1
—— Degree of Dryness .... Ditto ..... 1°.5
—— Degree of Moisture .. Ditto 960
—— Force of Vapour .... Ditto ..... 0.292 inch.
Least observed degree of Moisture 682
Maximum Temperature in Shade ..... 60°
Minimum Temperature in ditto ..... 23°
Maximum Temperature in the Sun ..... 69°
Minimum of Terrestrial Radiation..... 17°
Mean Temperature of External air ..... 41°.6

WINDS.

North.....2 days.		N. East.....3 days	
East.....3 ..		N. West..... 6 ..	
South.....3 ..		S. East.....4 ..	
West .....5 ..		S. West.....3 ..	
	29 days.		

Amount of Rain ..... 0.94 inch.

MARCH.

	1828.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
○	S.	1	30.315	45	43	2	Cloudy	30.202	48	43	5	Cold & Cloudy	30.091	46	43	3	Clear
	S.	2	—.083	47	43	4	Clear & Cold	—.111	49	44	5	Ditto	—.121	43	40	3	Ditto
	M.	3	—.028	45	43	2	Ditto	—.024	49	42	7	Fine	29.981	45	44	1	Cloudy
	Tu.	4	29.967	42	39	3	Fine	29.963	50	45	5	Do. but Cold	—.862	48	46	2	Ditto
	W.	5	—.765	38	36	2	Ditto	—.731	44	32	12	Ditto	—.891	33	24	9	Clear & Cold
	Th.	6	—.964	32	25	7	Clear & Cold	30.028	39	25	14	Squally	30.181	32	29	3	Ditto
	F.	7	30.281	35	28	7	Ditto	—.218	42	30	12	Cold & Cloudy	—.164	40	40	—	Wet
	S.	8	—.110	50	50	—	Hazy	—.196	57	51	6	Fine	—.271	49	48	1	Cloudy
◐	S.	9	—.301	49	49	—	Ditto	—.290	55	52	3	Ditto	—.260	49	47	2	Fine
	M.	10	—.278	49	48	1	Ditto	—.144	56	50	6	Very Fine	—.262	47	44	3	Ditto
	T.	11	—.282	47	47	—	Slight Fog	—.284	56	50	6	Ditto	—.252	43	41	2	Ditto
	W.	12	—.105	43	41	2	Fine	—.073	55	50	5	Cloudy	—.089	47	45	2	Cloudy
	Th.	13	—.163	52	48	4	Very Fine	—.167	60	53	7	Very Fine	—.220	53	51	2	Fine
	F.	14	—.298	52	50	2	Ditto	—.313	61	55	6	Ditto	—.339	50	50	—	Slight Fog
●	S.	15	—.389	51	51	—	Dense Fog	—.385	62	51	11	Ditto	—.395	45	45	—	Clear & Fine
	S.	16	—.379	53	51	2	Cloudy	—.303	62	54	8	Cloudy	—.224	54	54	—	Cloudy
	M.	17	—.173	51	51	—	Ditto	—.167	60	54	6	Ditto	—.195	50	48	2	Clear
	T.	18	—.213	48	47	1	Fine	—.121	58	44	14	Very Fine	29.760	50	49	1	Stormy
	W.	19	29.498	49	46	3	Ditto	29.542	53	36	17	Ditto	—.607	41	38	3	Clear
	Th.	20	—.410	45	41	4	Clear	—.355	52	45	7	Cloudy	—.180	46	44	2	Showery
	F.	21	—.023	47	46	1	Cloudy	28.997	51	46	5	Fine	—.151	40	39	1	Stormy
	S.	22	—.287	40	37	3	Clear & Fine	29.294	48	41	7	Showery	—.326	38	35	3	Clear & Cold
◑	S.	23	—.387	39	36	3	Ditto	—.494	47	30	17	Very Fine	—.569	35	34	1	Ditto
	M.	24	—.679	39	35	4	Clear & Cold	—.738	47	34	13	Clear & Cold	—.810	36	32	4	Ditto
	Tu.	25	—.861	38	31	7	Ditto	—.866	42	30	12	Ditto	—.906	32	27	5	Frosty
	W.	26	—.900	30	27	3	Ditto	—.833	46	32	14	Ditto	—.763	40	40	—	Overcast
	Th.	27	—.509	42	42	—	Wet	—.490	55	45	10	Fine	—.470	42	42	—	Cloudy
	F.	28	—.553	43	43	—	Drizzly	—.612	47	45	2	Cold & Cloudy	—.778	32	31	1	Clear
	S.	29	—.865	36	36	—	Cloudy	—.866	44	44	—	Showery	—.944	37	36	1	Cloudy
	S.	30	—.908	32	31	1	Ditto	30.186	49	41	8	Cloudy	30.223	35	34	1	Clear
○	M.	31	30.303	31	31	—	Dense Fog	—.336	52	40	12	Very Fine	—.388	36	35	1	Ditto
			29 944	43	41	2		29.946	51.4	43.	8.4		29.958	42.3	40.4	1.9	

MARCH.

Days.	Temperature. Max.	Min.	Sun.	Rad.	Wind. Direction.	Force.	Rain. In. Pts.	Remarks.
1	49	42	59	38	NW	Brisk		From the 1st to the 7th dry and cold, with brisk northerly wind. A slight shower of snow fell in the afternoon of the 5th, which with the rain on the night of the 7th, produced a sensible change in the temperature, and from that period to the 20th fine seasonable weather prevailed, which brought forward vegetation rapidly. It received a severe check by the frost of the 25th, when the thermometer fell to 24°. The blossoms of Apricots and other Fruits, where unprotected, were almost all killed. Hail fell on the 20th, 21st and 23rd.
2	49	33	52	27	——	Ditto		
3	50	40	61	32	——	Ditto		
4	50	36	55	30	——	Ditto		
5	46	28	54	20	N	Ditto		
6	39	27	52	19	——	Stormy		
7	42	40	51	38	NW	Ditto	.10	
8	59	47	75	45	W	Brisk		
9	61	42	73	38	SW	Ditto		
10	61	38	79	30	W	Little		
11	62	48	87	32	SW	Ditto		
12	58	41	82	37	——	Ditto		
13	61	47	91	40	W	Ditto		
14	63	40	90	37	——	Ditto		
15	+67	42	+95	31	S	Ditto		
16	62	48	80	44	SW	Ditto		
17	61	45	80	41	W	Ditto		
18	58	48	81	42	——	Strong		
19	55	38	73	30	SW	Brisk		
20	53	40	66	35	——	Ditto	.06	
21	55	35	65	30	NW	Ditto	.09	
22	48	30	60	24	W	Ditto	.03	
23	48	32	69	21	N	Little		
24	47	27	67	29	NE	Brisk		
25	42	—24	65	—13	E	Ditto		
26	47	38	69	32	SE	Ditto	.12	
27	55	36	64	30	——	Ditto	.14	
28	50	28	60	18	——	Ditto	.02	
29	45	31	72	21	——	Ditto	.03	
30	49	26	60	16	N	Little		
31	54	27	82	17	NE	Ditto		
	53	37	69	30			·59	

Mean Pressure from the 3 daily observations 29.949 inches.
—— Temperature ..... Ditto ..... 45°.5
—— Dew Point ..... Ditto ..... 41°.4
—— Degree of Dryness ... Ditto ..... 4°.1
—— Degree of Moisture .. Ditto 858
—— Force of Vapour ..... Ditto ..... 0.292 inch.
Least observed degree of Moisture 558
Maximum Temperature in the Shade .... 67°
Minimum Temperature in ditto ..... 24°
Maximum Temperature in the Sun ..... 95°
Minimum Temp. of Terrestrial Radiation 13°
Mean Temperature of External Air ..... 45°

WINDS.

North	4 days.	N. East	2 days.
South	1 ..	S. East	4 ..
East	1 ..	S. West	6 ..
West	7 ..	N. West	6 ..

31 days.

Amount of Rain..... 0.59 inch.

APRIL.

	Morning.						Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	30.305	40	37	3	Fine	30.225	53	39	14	Fine	30.146	44	43	1	Cloudy
W.	2	—.168	43	41	2	Ditto	—.080	50	40	10	Cloudy	—.136	36	32	4	Clear & Cold
Th.	3	—.144	40	35	5	Cloudy	—.072	45	25	20	Ditto & Cold	—.131	37	32	5	Ditto
F.	4	29.991	41	37	4	Ditto	29.993	46	34	12	Ditto	—.005	38	34	4	Ditto
S.	5	—.864	35	30	5	Clear & Cold	—.771	47	42	5	Ditto	29.711	44	43	1	Cloudy
S.	6	—.603	46	42	4	Cloudy	—.621	52	44	8	Cloudy	—.647	44	42	2	Ditto
☾ M.	7	—.418	42	42	—	Wet	—.381	55	43	12	Fine	—.482	41	40	1	Ditto
T	8	—.386	47	44	3	Fine	—.283	53	45	8	Overcast	—.229	43	42	1	Ditto
W.	9	—.268	49	45	4	Cloudy	—.408	57	48	9	Very Fine	—.501	42	40	2	Clear
Th.	10	—.458	47	47	—	Drizzly	—.450	58	48	10	Ditto	—.620	44	42	2	Ditto
F.	11	—.785	49	45	4	Fine	—.793	57	44	13	Ditto	—.731	49	49	—	Wet
S.	12	—.777	57	55	2	Ditto	—.653	60	60	—	Showery	—.578	52	52	—	Showery
S.	13	—.556	54	50	4	Clear	—.528	58	47	11	Stormy	—.651	49	44	5	Stormy
● M.	14	—.760	55	50	5	Very Fine	—.790	62	55	7	Very Fine	—.869	49	49	—	Cloudy
T.	15	—.784	54	54	—	Wet	—.710	57	57	—	Showery	—.679	48	48	—	Ditto
W.	16	—.649	52	50	2	Cloudy	—.508	55	55	—	Ditto	—.275	49	47	2	Clear
Th.	17	—.441	50	50	—	Showery	—.427	56	56	—	Wet	—.356	50	50	—	Cloudy
F.	18	—.360	50	50	—	Wet	—.411	57	57	—	Heavy Rain	—.498	50	50	—	Showery
S.	19	—.454	49	48	1	Cloudy	—.586	58	55	3	Cloudy	—.738	50	50	—	Cloudy
S.	20	—.778	52	50	2	Ditto	—.877	53	48	5	Ditto	—.841	46	45	1	Ditto
M.	21	—.752	48	48	—	Drizzly	—.724	49	49	—	Cold&Showery	—.677	42	42	—	Wet
☽ T.	22	—.700	43	43	—	Cold &Cloudy	—.820	50	50	—	Ditto	—.845	46	45	1	Cloudy
W.	23	—.883	46	45	1	Clear	—.865	52	47	5	Fine	—.780	49	49	—	Stormy &Wet
Th.	24	—.777	52	49	3	Fine	—.839	59	48	11	Very Fine	—.898	48	47	1	Fine
F.	25	—.881	50	50	—	Showery	—.949	57	54	3	Stormy	—.764	49	49	—	Stormy & Wet
S.	26	—.957	50	45	5	Very Fine	30.076	57	42	15	Very Fine	30.162	52	42	10	Very Fine
S.	27	30.277	49	47	2	Ditto	—.257	66	54	12	Ditto	—.295	49	47	2	Ditto
M.	28	—.267	55	50	5	Ditto	—.281	72	52	20	Ditto	—.238	59	52	7	Ditto
○ T.	29	—.233	60	53	7	Ditto	—.227	75	55	20	Ditto	—.220	63	58	5	Ditto
W.	30	—.290	61	58	3	Ditto	— 358	68	64	4	Cloudy	—.383	54	51	3	Ditto
		29.798	48.8	46.3	2.5		29.798	56.46	48.56	7.9		29.802	47.2	45.2	2.	

APRIL.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	54	40	85	32	SE	Little		A few days in the beginning of the month were clear and cold, and even for the greatest part of it the weather was unseasonable and wet, with little sunshine until the 26th, on the evening of that day the dryness of the air was remarkable, there being a difference of 10 degrees between the temperature of the dew point, and that of the atmosphere. The night was clear, with a moderate breeze. The 23d and 25th were very stormy at night.
2	50	33	75	24	N	Brisk		
3	47	30	62	20	——	Ditto		
4	46	—29	54	—19	NW	Ditto		
5	47	36	57	32	W	Ditto	.24	
6	53	38	73	31	N	Ditto	.04	
7	55	34	75	25	SW	Ditto	.15	
8	55	41	70	36	NE	Little		
9	57	40	76	32	SW	Ditto	.04	
10	61	38	79	31	NW	Brisk	.02	
11	59	47	75	43	SW	Ditto	.05	
12	60	49	68	45	——	Ditto	.09	
13	58	41	68	35	——	Stormy		
14	62	42	74	35	S	Brisk	.14	
15	57	45	58	40	——	Ditto	.10	
16	58	45	72	40	SW	Little	.13	
17	56	45	61	44	S	Ditto	.28	
18	57	42	57	41	——	Ditto	.49	
19	58	45	62	43	SE	Brisk		
20	53	44	53	42	NE	Ditto		
21	49	40	49	35	N	Ditto	.07	
22	51	42	58	40	——	Ditto	.18	
23	52	45	64	42	NW	Ditto	.20	
24	60	46	74	40	W	Ditto		
25	59	47	68	46	——	Stormy	.22	
26	63	36	78	30	SW	Little		
27	67	41	89	31	S	Ditto		
28	72	45	92	36	——	Ditto		
29	+75	48	+94	39	——	Ditto		
30	68	38	88	29	N	Ditto		
	57·3	41.06	63.6	35.26			2.44	

Mean Pressure from the 3 daily observations 29.799 inches.
—— Temperature ..... Ditto ..... 50°.83
—— Dew Point ..... Ditto ..... 46°.69
—— Degree of Dryness ... Ditto ..... 4°.14
—— Degree of Moisture .. Ditto 880
—— Force of Vapour. .... Ditto .... . 0.352 inch.
Least observed degree of Moisture 525
Maximum Temperature in Shade ..... 75°
Minimum Temperature in ditto ..... 29°
Maximum Temperature in the Sun ..... 94°
Minimum of Terrestrial Radiation ..... 19°
Mean Temperature of External Air..... 49°.18

WINDS.

North.....	6 days.	N. East.....	2 days.
South.....	7 ..	S. East.....	2 ..
East	0 ..	S. West.....	7 ..
West.....	3 ..	N. West.....	3 ..

30 days.

Amount of Rain..... 2.44 inches.

MAY.

		Morning.					Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	30.297	53	50	3	Very Fine	30.340	66	45	21	Very Fine	30.318	48	46	2	Fine
F.	2	—.263	53	48	5	Ditto	—.191	61	52	9	Ditto	—.142	52	47	5	Ditto
S.	3	—.024	53	51	2	Slight Rain	—.014	60	54	6	Cloudy	29.997	54	54	—	Cloudy
S.	4	29.791	60	59	1	Cloudy	29.754	63	53	10	Fine	—.760	50	50	—	Ditto & damp
M.	5	—.740	52	49	3	Do.wthShowers	—.702	59	49	10	Ditto	—.722	47	45	2	Fine
☾ T.	6	—.742	52	49	3	Very Fine	—.848	63	47	16	Very Fine	—.801	45	44	1	Ditto
W.	7	—.847	49	48	1	Cloudy	—.859	62	48	14	Ditto	—.914	52	52	—	Drizzly
Th.	8	—.912	51	48	3	Ditto	—.954	60	50	10	Ditto	—.990	48	45	3	Fine
F.	9	30.075	53	49	4	Very Fine	30.140	59	50	9	Fine	30.168	54	50	4	Ditto
S.	10	—.191	54	46	8	Ditto	—.174	59	45	14	Ditto	—.132	55	53	2	Overcast
S.	11	—.094	60	54	6	Cloudy	—.084	64	59	5	Cloudy	—.110	55	54	1	Fine
M.	12	—.239	56	51	5	Very Fine	—.273	67	49	18	Very Fine	—.302	57	54	3	Ditto
● T.	13	—.318	57	52	5	Ditto	—.288	67	48	19	Ditto	—.225	52	50	2	Ditto
W.	14	—.203	57	53	4	Ditto	—.156	71	56	15	Ditto	—.138	54	51	3	Ditto
Th.	15	—.072	59	57	2	Ditto	—.048	68	56	12	Ditto	29.996	59	55	4	Ditto
F.	16	29.901	60	55	5	Ditto	29.856	71	62	9	Ditto	—.860	62	59	3	Sultry wth Thunder
S.	17	—.860	59	53	6	Ditto	—.816	70	61	9	Ditto	—.814	56	52	4	Cloudy
S.	18	—.823	60	50	10	Ditto	—.825	66	50	16	Ditto	—.847	50	46	4	Clear & Fine
M.	19	—.816	61	49	12	Ditto	—.836	67	47	20	Ditto	—.818	50	45	5	Ditto
T.	20	—.786	55	49	6	Ditto	—.753	62	54	8	Cloudy	—.715	53	49	4	Cloudy
☽ W.	21	—.584	55	54	1	Cloudy	—.569	64	60	4	Hazy	—.574	56	54	2	Ditto
Th.	22	—.591	53	53	—	Drizzly	—.595	60	60	—	Showery	—.587	55	55	—	Ditto & damp
F.	23	—.600	57	54	3	Cloudy	—.592	66	55	11	Very Fine	—.602	55	54	1	Fine
S.	24	—.475	60	60	—	Heavy Rain	—.520	67	58	9	Ditto	—.440	57	57	—	Showery
S.	25	—.697	61	58	3	Fine	—.784	66	59	7	Fine	—.844	53	53	—	Fine
M.	26	—.735	65	58	7	Ditto	—.679	70	67	3	Showery	—.624	59	59	—	Cloudy
T.	27	—.594	59	55	4	Ditto	—.564	68	62	6	Ditto	—.545	50	50	—	Clear but damp
W.	28	—.608	62	60	2	Ditto	—.632	67	52	15	Very Fine	—.673	58	57	1	Clear & Fine
○ Th.	29	—.708	60	57	3	Ditto	—.726	65	63	2	Showery	—.762	60	60	—	Cloudy & damp
F.	30	—.920	60	56	4	Very Fine	—.957	74	52	22	Very Fine	—.923	60	56	4	Fine
S.	31	—.856	57	57	—	Drizzly	—.860	69	60	9	Fine	—.933	55	53	2	Ditto
		29.882	56.87	52.97	3.90		29.883	65.19	54.29	10.9		29.879	53.9	51.9	2.	

MAY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	66	38	94	28	SE	Little		The weather in the beginning, and towards the latter
2	62	47	92	41	E	Brisk	.05	end, of this month was somewhat changeable; but upon
3	61	49	72	47	SE	Little	.03	the whole the temperature is rather above the average
4	64	40	94	35	S	Brisk	.13	mean. On the 3rd, 6th, 9th, and 15th, there was a good
5	61	35	82	26	N	Little	.02	deal of thunder heard, as well as on the evening of the 16th,
6	63	36	92	31	SW	Ditto		when there was much sheet lightning observed. The
7	64	46	90	43	N	Ditto	.05	blighting Easterly winds were very prevalent, and checked
8	61	—35	83	—24	NW	Ditto		vegetation considerably.
9	60	36	82	28	W	Brisk	.04	
10	64	48	83	45	——	Little		Mean Pressure from the 3 daily observations 29.881 inches.
11	65	41	90	36	N	Ditto		—— Temperature .....Ditto..... 58°.65
12	67	38	90	30	NE	Ditto		—— Dew Point .....Ditto..... 53°.05
13	72	42	+97	35	——	Ditto		—— Degree of Dryness ....Ditto..... 5°.60
14	71	44	92	37	E	Ditto		—— Degree of Moisture ...Ditto..... 844
15	69	54	91	50	——	Brisk		—— Force of Vapour .....Ditto..... 0.444 inch.
16	71	52	93	47	——	Ditto		Least observed degree of Moisture 488
17	70	45	92	43	——	Ditto		Maximum Temperature in Shade ..... 75°
18	66	42	81	35	NE	Ditto		Minimum Temperature in ditto..... 35°
19	67	42	88	35	——	Ditto		Maximum Temperature in the Sun .... 97°
20	65	47	82	43	E	Ditto		Minimum of Terrestrial Radiation ..... 24°
21	65	49	77	47	——	Ditto	.03	Mean Temperature of External air ..... 55°.88
22	61	48	72	47	——	Little	.03	
23	66	52	88	49	——	Ditto		WINDS.
24	67	53	85	51	S	Brisk	.34	North..... 3 days. | N. East.... 4 days.
25	66	47	76	39	SW	Ditto		South ..... 6 .. | S. East ..... 2 ..
26	70	47	80	40	S	Ditto	.13	East ..... 9 .. | S. West .... 4 ..
27	68	57	86	49	——	Little	.34	West..... 2 .. | N. West.... 1 ..
28	67	54	89	50	——	Ditto		31 days.
29	67	50	78	45	SW	Ditto	.12	
30	+75	52	96	46	S	Brisk	.09	Amount of Rain ..... 1.40 inch.
31	69	50	89	45	SW	Little		
	66.12	45.67	86.31	40.22			1.40	

JUNE.

		Morning.					Noon.					Night.				
1828	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
	S. 1	30.047	61	53	8	Fine	30.073	68	51	17	Fine	30.053	59	58	1	Fine
	M. 2	29.936	57	53	4	Ditto	29.924	66	57	9	Very Fine	29.966	53	51	2	Ditto
	T. 3	—.991	60	53	7	Very Fine	—.978	65	54	11	Ditto	—.919	57	56	1	Cloudy
☾	W. 4	—.537	59	59	—	Heavy Rain	—.496	65	65	—	Rainy	—.477	53	51	2	Fair, Cold
	Th. 5	—.323	51	49	2	Cold & Cloudy	—.481	61	51	10	Cold, Squally	—.543	55	50	5	Clear & Cold
	F. 6	—.626	59	55	4	Fine	—.689	65	55	10	Sultry	—.802	52	49	3	Showery
	S. 7	30.001	54	50	4	Cold & Clear	30.117	61	47	14	Cold & Clear	30.137	53	49	4	Very Fine
	S. 8	—.186	60	52	8	Fine	—.194	63	51	12	Cloudy	—.206	56	56	—	Showery
	M. 9	—.244	65	60	5	Ditto	—.132	67	55	12	Very Fine	—.252	60	56	4	Fine
	T. 10	—.266	61	54	7	Ditto	—.249	70	57	13	Ditto	—.258	61	56	5	Ditto
	W. 11	—.247	60	54	6	Ditto	—.225	72	59	13	Ditto	—.219	63	62	1	Cloudy
●	Th. 12	—.233	62	58	4	Ditto	—.245	65	57	8	Sultry	—.239	57	53	4	Fine
	F. 13	—.249	60	52	8	Ditto	—.235	76	52	24	Very Fine	—.251	63	53	10	Ditto
	S. 14	—.233	61	52	9	Very Fine	—.217	70	50	20	Ditto	—.185	60	56	4	Ditto
	S. 15	—.086	63	58	5	Drizzly	—.074	72	50	22	Ditto	—.032	62	57	5	Sultry
	M. 16	—.010	64	63	1	Ditto	29.923	70	65	5	Drizzly	29.852	61	60	1	Ditto
	T. 17	29.541	64	61	3	Sultry	—.535	69	65	4	Sultry	—.517	60	58	2	Fine
	W. 18	—.534	62	62	—	Showery	—.503	71	61	10	Very Fine	—.721	63	63	—	Drizzly
	Th. 19	—.947	63	61	2	Cloudy	—.964	72	65	7	Sultry	—.974	62	61	1	Fine
☽	F. 20	—.976	65	61	4	Fine	—.972	74	60	14	Very Fine	—.968	64	61	3	Ditto
	S. 21	—.867	60	60	—	Heavy Rain						—.904	63	60	3	Ditto
	S. 22	—.920	64	62	2	Fine	29.948	71	59	12	Very Fine	—.972	57	57	—	Cloudy
	M. 23	30.081	61	60	1	Ditto	30.111	71	60	11	Ditto	30.182	60	57	3	Fine
	T. 24	—.268	62	60	2	Ditto	—.286	74	56	18	Ditto	—.308	63	60	3	Ditto
	W. 25	—.285	63	59	4	Ditto	—.271	80	63	17	Ditto	—.301	62	61	1	Ditto
	Th. 26	—.337	65	62	3	Very Fine	—.321	85	68	17	Ditto	—.305	69	65	4	Ditto
○	F. 27	—.164	70	63	7	Ditto	—.168	82	60	22	Ditto	—.130	65	61	4	Ditto
	S. 28	—.045	70	67	3	Ditto	—.011	81	68	13	Ditto	29.975	66	64	2	Ditto
	S. 29	29.940	64	62	2	Cloudy	29.924	80	68	12	Ditto	30.013	60	58	2	Ditto
	M. 30	—.953	63	58	5	Very Fine	—.959	82	64	18	Ditto	29.929	67	64	3	Ditto
		30.002	61.76	57.76	4.	*	30.007	71.31	58.37	12.93		30.019	60.2	57.43	2.76	

* These are calculated for 29 days only.

JUNE.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	69	52	92	50	SW	Brisk			The state of the weather during this month has been warm and sultry. On the 4th there fell a considerable quantity of rain. At noon of the 6th some heavy peals of Thunder were heard, which were followed by slight showers of hail. The morning of the 21st was very stormy and wet, but from that period to the end of the month the weather was warm and pleasant.
2	67	49	87	45	——	Ditto			
3	65	54	82	50	——	Ditto			
4	65	50	68	43	W	Ditto		.76	
5	62	45	80	40	SW	Ditto		.03	
6	65	49	91	43	W	Ditto		.01	
7	61	—44	71	40	——	Little			
8	64	47	86	40	——	Ditto		.07	
9	70	47	98	40	NW	Ditto			
10	70	55	89	51	W	Ditto			
11	73	56	96	52	——	Ditto			
12	65	47	75	—40	NW	Ditto			
13	77	48	99	40	E	Brisk			
14	72	54	92	48	NE	Ditto			
15	73	58	93	53	——	Ditto		.06	
16	71	59	87	52	E	Little		.01	
17	71	55	92	50	NW	Ditto			
18	72	55	94	51	W	Brisk		.05	
19	72	54	85	48	SW	Ditto		.02	
20	73	58	93	55	——	Little		.21	
21	70	55			——			.68	
22	72	48	92	40	——	Ditto		.04	
23	73	52	94	45	W	Ditto			
24	75	53	96	46	——	Ditto			
25	81	53	101	47	SE	Ditto			
26	+85	54	+105	46	E	Ditto			
27	83	57	100	52	——	Ditto			
28	79	56	92	50	——	Ditto			
29	81	49	95	42	NE	Ditto			
30	84	58	102	51	SE	Ditto			
	72	52.36	*90.58	46.55			1.94		

Mean Pressure from the 3 daily observations 30.009 inches.
—— Temperature ..... Ditto ..... 64°.42
—— Dew Point ..... Ditto ..... 57°.85
—— Degree of Dryness ... Ditto ..... 6°.56
—— Degree of Moisture .. Ditto 798
—— Force of Vapour ..... Ditto ..... 0.508 inch.
Least observed degree of Moisture 457
Maximum Temperature in Shade ..... 85°
Minimum Temperature in ditto ..... 44°
Maximum Temperature in the Sun .....105°
Minimum of Terrestrial Radiation ..... 40°
Mean Temperature of External air ..... 62°.18

Winds.

North	0 days	N. East	3 days
South	0 ..	N. West	3 ..
East	5 ..	S. East	2 ..
West	9 ..	S. West	8 ..

30 days.

Amount of Rain.....1.94 inch.

* These are calculated for 29 days only.

JULY.

		Morning.					Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	29.927	64	60	4	Very Fine	29.923	73	65	8	Very Fine	29.901	65	63	2	Sultry
W.	2	—.866	65	64	1	Drizzly	— 901	76	67	9	Ditto	—.885	67	64	3	Fine
Th.	3	—.898	70	67	3	Cloudy	—.902	83	65	18	Ditto	—.849	71	69	2	Sultry
☾ F,	4	—.827	70	69	1	Fine	—.860	79	73	6	Cloudy&warm	—.856	68	64	4	Very Fine
S.	5	—.867	70	65	5	Very Fine	—.853	77	64	13	Very Fine	—.871	63	60	3	Ditto
S.	6	—.875	66	64	2	Cloudy	—.877	74	70	4	Showery	—.879	62	60	2	Ditto
M.	7	—.887	68	64	4	Fine	—.842	72	62	10	Fine	—.796	67	64	3	Ditto
T.	8	—.697	69	65	4	Very Fine	—.606	81	72	9	Sultry	—.578	69	69	—	Sultry
W.	9	—.512	64	63	1	Cloudy	—.559	69	65	4	Showery	—.642	62	62	—	Wet
Th.	10	—.745	60	60	—	Wet	—.804	72	65	7	Fine	—.921	62	60	2	Fine
F.	11	—.981	65	63	2	Cloudy	—.927	70	65	5	Cloudy and Sultry	—.848	62	62	—	Cloudy
● S.	12	—.508	63	63	—	Showery	—.519	62	62	—	Wet	—.483	58	58	—	Wet
S.	13	—.459	59	59	—	Ditto	—.475	64	61	3	Showery	—.539	59	59	—	Fine
M.	14	—.531	57	55	2	Fine	—.513	67	62	5	Sultry wth Thunder	—.501	60	60	—	Cloudy
T.	15	—.487	60	60	—	Drizzly	—.521	67	64	3	Showery	—.596	61	60	1	Fine
W.	16	—.753	62	61	1	Slight Fog	—.788	70	64	6	Fine	—.786	62	61	1	Ditto
Th.	17	—.761	63	61	2	Cloudy	—.735	72	65	7	Ditto	—.610	65	64	1	Ditto
F.	18	—.545	61	59	2	Fine	—.572	70	70	—	Showery	—.576	60	58	2	Ditto
S	19	—.553	63	60	3	Ditto	—.576	70	67	3	Slight Showers	—.620	58	55	3	Very Fine
☽ S.	20	—.398	58	58	—	Wet	—.302	68	68	—	Wet	—.298	59	59	—	Cloudy
M.	21	—.491	61	59	2	Fine	—.521	70	63	7	Overcast	—.438	56	56	—	Heavy Rain
T.	22	—.568	60	59	1	Ditto	—.600	70	64	6	Showery	—.654	62	61	1	Fine
W.	23	—.701	62	60	2	Ditto	—.689	73	66	7	Ditto	—.683	60	60	—	Cloudy
Th.	24	—.644	63	63	—	Wet	—.616	71	65	6	Ditto	—.592	62	62	—	Ditto
F.	25	—.574	62	61	1	Fine	— 569	72	72	—	Ditto	—.636	61	61	—	Showery
○ S.	26	—.719	59	57	2	Ditto	—.745	70	70	—	Cloudy & Wet	—.763	58	58	—	Ditto
S.	27	—.804	60	60	—	Showery	—.814	65	58	7	Clear	—.905	55	55	—	Cloudy
M.	28	—.999	59	55	4	Clear & Fine	30.017	67	57	10	Very Fine	— 943	58	56	2	Fine
T.	29	— 893	60	54	6	Very Fine	29.873	64	51	13	Fine Showery	—.895	51	51	—	Ditto
W.	30	—.882	56	54	2	Cold & Clear	—.901	62	60	2	Cold	—.947	55	53	2	Ditto
Th.	31	30.012	55	51	4	Very Fine	—.990	71	50	21	Very Fine	—.958	57	55	2	Ditto
		29.721	62.38	60.42	1.96		29.722	70.67	64.25	6.42		29.724	61.12	59.96	1.16	

JULY.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	74	62	87	59	SW	Little		The whole of this month has been wet and unseasonable, the quantity of rain which fell is nearly one-third above what is considered the average amount for July. The mean temperature is also above the average. In the evening of the 3d and towards the morning of the 4th a very heavy thunder storm passed over the metropolis, the lightning was particularly vivid and frequent, and the thunder very loud. Much thunder was also heard during the month, particularly on the 8th, 9th, 14th, 20th, 23d, 24th and 25th, which, excepting that on the 14th, was all more or less accompanied with heavy showers of rain.
2	76	62	90	58	——	Brisk		
3	+84	64	96	61	S	Ditto	.78	
4	79	62	92	58	SW	Ditto		
5	77	56	90	50	——	Ditto		
6	74	55	87	50	——	Little	.06	
7	77	58	91	52	SE	Ditto		
8	82	61	+98	60	E	Ditto	.08	
9	69	54	72	54	S	Ditto	.57	
10	76	56	88	48	SW	Ditto	.02	
11	72	58	85	57	S	Ditto	.18	
12	65	54	67	50	——	Brisk	.75	
13	65	51	76	46	SW	Ditto	.04	
14	69	50	82	46	——	Little		
15	72	47	89	41	——	Ditto	.05	
16	76	56	90	50	——	Ditto		
17	74	59	84	55	——	Ditto		
18	72	56	82	52	S	Ditto	.09	
19	70	52	83	45	——	Ditto	.03	
20	68	54	70	50	W	Brisk	.47	
21	71	50	86	48	NW	Ditto	.43	
22	72	54	87	50	W	Ditto	.08	
23	74	57	90	49	——	Ditto	.33	
24	72	58	85	55	SW	Ditto	.12	
25	72	54	86	49	W	Little	.07	
26	70	51	80	45	——	Brisk	.10	
27	67	52	84	50	NW	Ditto	.08	
28	72	51	92	43	N	Ditto		
29	70	—43	91	—35	NW	Ditto	.05	
30	64	45	82	36	W	Ditto		
31	74	53	97	45	NW	Little		
	72.5	54.6	85.1	49.9			4.38	

Mean Pressure from the 3 daily observations 29.722 inches.
—— Temperature .....Ditto..... 64°.72
—— Dew Point .....Ditto..... 61°.54
—— Degree of Dryness ....Ditto..... 3°.18
—— Degree of Moisture....Ditto..... 907
—— Force of Vapour.....Ditto..... 0.577 inch.
Least observed degree of Moisture..... 515
Maximum Temperature in Shade..... 84°
Minimum Temperature in ditto..... 43°
Maximum Temperature in the Sun .... 98°
Minimum of Terrestrial Radiation ..... 35°
Mean Temperature of External Air..... 63°.55

Winds.

North.....1 days.		N. East ....0 days.	
South 6	..	N. West....4	..
East 1	..	S. East.....1	..
West 6	..	S. West ...12	..

31 days.

Amount of Rain ..... 4.38 inches.

AUGUST.

		Morning.					Noon					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.959	59	56	3	Fine	29.951	74	57	17	Very Fine	29.895	60	58	2	Cloudy
☾ S.	2	—.691	61	61	—	Slight Rain	—.642	67	66	1	Showery	—.630	60	60	—	Wet
S.	3	—.584	62	62	—	Ditto	—.565	67	67	—	Heavy Rain	—.543	62	62	—	Ditto
M.	4	—.567	60	59	1	Very Fine	—.582	68	57	11	Very Fine	—.584	57	56	1	Cloudy
T.	5	—.616	59	57	2	Ditto	—.628	70	61	9	Ditto	—.644	61	59	2	Fine
W.	6	—.477	60	59	1	Hazy	—.420	68	68	—	Heavy Rain	—.433	61	61	—	Rainy w^{h} Thunder
Th.	7	—.454	62	62	—	Cloudy	—.461	72	70	2	Showery	—.527	60	60	—	Fair
F.	8	—.614	65	63	2	Fine	—.632	71	67	4	Very Fine	—.742	58	57	1	Fine
S.	9	—.456	63	61	2	Ditto	—.406	67	64	3	Showery & Stormy	—.502	60	57	3	Stormy
● S.	10	—.634	62	58	4	Ditto	—.644	69	54	15	Fine	—.725	56	55	1	Fine
M.	11	—.707	63	60	3	Ditto	—.753	68	58	10	Cloudy	—.804	58	58	—	Wet
T.	12	—.794	60	59	1	Ditto	—.838	68	58	10	Showery, Thunder	—.860	58	58	—	Fine
W.	13	—.836	58	57	1	Cloudy	—.796	59	59	—	Rainy	—.698	57	57	—	Rainy
Th.	14	—.631	56	56	—	Drizzly	—.552	58	58	—	Ditto	—.724	53	53	—	Ditto
F.	15	—.863	53	52	1	Fine	—.902	64	50	14	Fine	—.934	54	52	2	Fine
S.	16	—.954	53	53	—	Foggy	—.966	70	57	13	Very Fine	—.954	59	57	2	Cloudy
S.	17	—.905	61	60	1	Cloudy	—.879	68	64	4	Cloudy	—.838	61	61	—	Slight Rain
☽ M.	18	—.934	62	60	2	Fine	—.946	69	57	12	Very Fine	—.968	56	53	3	Fine
T.	19	30.127	57	54	3	Ditto	30.141	73	59	14	Ditto	30.147	55	54	1	Ditto
W.	20	—.081	58	55	3	Ditto	—.046	72	65	7	Ditto	29.959	56	55	1	Ditto
Th.	21	29.856	60	59	1	Cloudy	29.804	67	67	—	Showery	—.772	57	57	—	Ditto
F.	22	—.804	57	55	2	Fine	—.812	63	60	3	Do. Thunder	—.834	55	55	—	Overcast
S.	23	30.025	55	53	2	Ditto	30.039	67	60	7	Fine	30.137	57	56	1	Very Fine
S.	24	—.193	58	57	1	Very Fine	—.187	73	67	6	Very Fine	—.201	67	66	1	Ditto
○ M.	25	—.302	64	61	3	Ditto	—.296	76	67	9	Sultry & warm	—.338	62	62	—	Ditto
T.	26	—.340	63	63	—	Foggy	—.326	73	66	7	Very Fine	—.323	58	58	—	Heavy Dew
W.	27	—.297	61	61	—	Ditto	—.270	73	67	6	Ditto	— 231	59	58	1	Very Fine
Th.	28	—.218	59	59	—	Ditto	—.210	74	65	9	Ditto	—.190	60	60	—	Heavy Dew
F.	29	—.198	60	59	1	Very Fine	—.194	72	64	8	Ditto	—.192	61	61	—	Cloudy
S.	30	—.193	62	60	2	Ditto	—.161	71	65	6	Ditto	—.140	60	59	1	Ditto
S.	31	—.123	62	61	1	Cloudy	—.101	62	58	4	Cloudy	—.065	59	58	1	Ditto
		29.884	59.83	58.45	1.38		29.875	68.8	62.	6.8		29.888	58.61	57.84	.77	

AUGUST.

Days.	Temperature. Max.	Min.	Sun.	Rad.	Wind. Direction.	Force.	Rain. In.	Pts.	Remarks.
1	74	55	90	50	W	Brisk			
2	69	53	82	44	S	Ditto		.65	The first part of this month was similar to that of July, wet and unseasonable, with strong westerly winds. Thunder was heard on the 3rd, 6th, 7th and 12th, and much rain fell on the 13th, after which the weather became fine and pleasant to the end of the month, and favourable for the operations of the harvest.
3	68	52	81	48	SW	Ditto		.50	
4	70	53	92	49	——	Ditto		.12	
5	72	50	87	41	——	Little			
6	70	56	81	52	S	Ditto		.42	
7	72	58	87	54	——	Ditto		.57	
8	72	55	90	48	SW	Brisk		.13	
9	68	56	80	50	——	Stormy		.04	Mean Pressure from the 3 daily observations 29.882 inches.
10	69	53	85	46	——	Strong			—— Temperature ..... Ditto ..... 62°.41
11	69	55	85	51	——	Ditto		.36	—— Dew Point ..... Ditto ..... 59°.43
12	69	46	85	40	W	Ditto		.11	—— Degree of Dryness ... Ditto ..... 2°.98
13	62	54	70	51	SE	Little	1	.14	—— Degree of Moisture ... Ditto 914
14	58	47	59	43	E	Brisk		.12	—— Force of Vapour ..... Ditto ..... 0.543 inch.
15	68	45	83	—37	NW	Ditto			Least observed degree of Moisture 579
16	72	58	90	55	W	Ditto			Maximum Temperature in Shade ..... 78°
17	68	51	75	45	SW	Ditto		.04	Minimum Temperature in ditto ..... 44°
18	69	49	85	41	W	Little			Maximum Temperature in the Sun ..... 96°
19	74	46	89	40	SW	Ditto			Minimum of Terrestrial Radiation ..... 37°
20	73	52	86	47	S	Ditto			Mean Temperature of External Air ..... 61°
21	67	50	82	45	——	Ditto		.10	
22	65	49	80	42	NW	Brisk		.05	**Winds.**
23	67	—44	84	39	W	Little			North.....0 days. | N. East.....3 days.
24	76	61	89	55	——	Ditto			South.....5 .. | N. West.....3 ..
25	+78	59	92	54	NW	Ditto			East.....4 .. | S. East .....1 ..
26	78	48	+96	40	E	Ditto			West.....6 .. | S. West.....9 ..
27	74	52	94	47	E	Ditto			31 days.
28	75	54	95	50	NE	Ditto			
29	74	58	93	55	E	Ditto			Amount of Rain.....4.35 inches.
30	72	55	94	49	NE	Brisk			
31	62	56	72	54	——	Ditto			
	70	52	84	47			4	.35	

SEPTEMBER.

		Morning.					Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
☾ M.	1	30.013	62	60	2	Cloudy	30.001	64	62	2	Cloudy wh Showers	30.019	61	61	—	Cloudy
T.	2	—.039	62	59	3	Clear	—.032	66	57	9	Fine	—.074	50	50	—	Clear
W.	3	—.088	51	51	—	Cloudy & Damp	—.073	67	62	5	Hazy	—.081	57	57	—	Hazy
Th.	4	—.065	58	58	—	Clear	—.029	70	54	16	Very Fine	—.008	55	55	—	Ditto
F.	5	—.009	60	56	4	Ditto & Fine	29.944	68	52	16	Ditto	—.054	53	53	—	Ditto
S.	6	—.100	60	58	2	Ditto	30.061	69	60	9	Ditto	—.023	58	57	1	Clear
S.	7	—.035	65	62	3	Very Fine	—.036	76	58	18	Ditto	—.045	65	63	2	Fine
M.	8	29.959	68	64	4	Clear	29.860	79	55	24	Ditto	29.780	64	59	5	Clear
● T.	9	— 836	67	66	1	Very Fine	—.447	73	68	5	Very Fine	—.932	57	57	—	Do. wh Heavy Dew
W.	10	—.804	62	61	1	Cloudy	—.699	66	66	—	Heavy Rain	—.604	57	57	—	Cloudy & damp
Th.	11	—.696	65	63	2	Fine	—.587	75	69	6	Fine	—.582	62	62	—	Stormy
F.	12	—.464	62	62	—	Rainy	—.418	69	66	3	Ditto	—.428	60	60	—	Cloudy
S.	13	—.584	62	61	1	Fine	—.736	68	63	5	Ditto	—.646	54	54	—	Rainy
S.	14	—.964	53	52	1	Cloudy	30.035	55	55	—	Wet	30.140	52	51	1	Cloudy
M.	15	30.315	55	52	3	Fine	—.376	61	52	9	Fine	—.516	45	45	—	Ditto
☽ T.	16	—.594	51	48	3	Ditto	—.564	61	42	19	Very Fine	— 307	45	45	—	Heavy Dew
W.	17	—.395	51	50	1	Fine	—.312	64	51	13	Fine	—.170	54	52	2	Overcast
Th.	18	—.055	58	55	3	Ditto	29.962	66	59	7	Ditto	29.978	49	49	—	Heavy Dew
F.	19	—.089	51	49	2	Ditto	30.105	67	62	5	Ditto	30.168	50	50	—	Cloudy Ditto
S.	20	—.217	53	53	—	Foggy	—.204	67	55	12	Ditto	—.187	50	50	—	Ditto
S.	21	—.147	51	51	—	Ditto	—.059	66	58	8	Ditto	—.026	49	49	—	Ditto
M.	22	29.981	60	59	1	Cloudy	29.983	66	60	6	Overcast	—.018	54	54	—	Foggy
○ T.	23	30.138	60	60	—	Foggy	30.131	69	65	4	Cloudy	—.146	57	55	2	Fine
W.	24	—.115	64	62	2	Cloudy	—.090	69	65	4	Fine	—.043	58	57	1	Ditto
Th.	25	29 946	64	62	2	Fine	29.923	70	65	5	Ditto	29.815	57	56	1	Ditto
F.	26	—.812	65	62	3	Ditto	—.794	74	70	4	Ditto	—.881	61	60	1	Ditto
S.	27	—.900	57	57	—	Rainy	—.852	60	60	—	Rainy	— 863	53	53	—	Cloudy & damp
S.	28	—.817	56	55	1	Fine	—.755	65	65	—	Showery	—.610	57	57	—	Wet
M.	29	—.587	63	62	1	Stormy	—.641	67	65	2	Stormy	—.572	56	56	—	Stormy
☾ T.	30	—.698	57	56	1	Fine	—.679	62	62	—	Showery	—.688	50	50	—	Cloudy
		29.982	59.10	57.53	1.57		29.981	67.3	60.1	7.2		29 946	55.	54 46	.54	

SEPTEMBER.

Temperature.					Wind.		Rain.	Remarks
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	69	53	89	47	NE	Brisk	.10	The weather during the greater part of this month was fine and pleasant, and the average mean temperature is higher than it has been for many years. The amount of rain which fell in the second week, and the last four days of the month is one-third above the average. Thunder was heard in the evening of the 8th, and much lightning observed. A phenomenon of rare occurrence was seen about 9 o'clock P. M. on the 15th. A luminous arch resembling a lunar rainbow stretched across the sky from East to West, presenting a most beautiful appearance. The Aurora Borealis was visible on the 29th in the N. W.
2	69	47	88	40	——	Ditto		
3	67	53	90	48	——	Ditto		
4	72	52	94	46	——	Ditto	04	
5	72	46	90	39	——	Ditto		
6	69	57	87	54	E	Ditto		
7	76	54	95	48	SE	Ditto		
8	+79	59	94	54	——	Ditto	.20	
9	73	49	87	42	SW	Ditto		
10	68	57	72	52	S	Ditto	1.27	
11	75	59	82	54	SW	Strong	.44	
12	70	56	83	51	——	Ditto	.23	
13	69	46	86	46	——	Ditto	.40	
14	58	48	75	46	E	Ditto	.05	
15	64	—37	85	—30	——	Ditto		
16	63	39	86	31	——	Brisk		
17	66	50	85	45	SE	Ditto		
18	67	41	82	35	E	Little		
19	71	47	88	40	——	Ditto		
20	70	41	88	33	——	Brisk		
21	68	46	88	39	——	Ditto		
22	76	52	99	45	W	Little		
23	69	46	85	44	——	Ditto		
24	70	55	91	49	SW	Brisk		
25	74	50	92	45	——	Ditto		
26	79	54	+107	49	——	Little		
27	63	24	80	36	——	Ditto	0 46	
28	66	55	84	51	NW	Brisk	.45	
29	67	52	80	46	W	Strong	.34	
30	64	48	82	44	——	Ditto	.05	
	69.4	49.7	87.1	44.3			4.03	

Mean Pressure from the 3 daily observations 29.969 inches.
—— Temperature ..... Ditto ..... 60°.46
—— Dew Point ..... Ditto ..... 57°.36
—— Degree of Dryness .... Ditto ..... 3°.10
—— Degree of Moisture .. Ditto 935
—— Force of Vapour ..... Ditto ..... 0.508 inch.
Least observed degree of Moisture 464
Maximum Temperature in Shade ..... 79°
Minimum Temperature in ditto ..... 37°
Maximum Temperature in the Sun ..... 107°
Minimum of Terrestrial Radiation ..... 30°
Mean Temperature of External Air ..... 59°.55

WINDS.

North	0 days	N. East	5 days.
South	1 ..	N. West ...	1 ..
East	8 ..	S. East	3 ..
West	4 ..	S. West	8 ..

30 days.

Amount of Rain ..... 4.03 inches.

OCTOBER.

		Morning.					Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	29.607	50	50	—	Rainy	29.657	66	59	7	Fine	29.671	49	48	1	Fine
T.	2	—.831	50	50	—	Fine	—.840	61	54	7	Ditto	—.906	48	48	—	Heavy Dew
F.	3	—.940	47	46	1	Ditto	—.900	62	52	10	Very Fine	—.776	50	50	—	Cloudy
S.	4	—.595	52	52	—	Rainy	—.588	64	63	1	Cloudy	—.644	45	45	—	Ditto
S.	5	—.601	57	56	1	Fine	—.572	63	59	4	Overcast	—.433	57	57	—	Rainy
M.	6	—.348	55	54	1	Ditto	—.431	61	56	5	Fine	—.578	50	49	1	Fine
T.	7	—.653	53	52	1	Ditto	—.595	61	58	3	Cloudy	—.498	53	53	—	Slight Fog
● W.	8	—.635	54	50	4	Very Fine	—.615	60	51	9	Squally	—.784	54	52	2	Fine
T.	9	—.990	51	48	3	Ditto	30.071	59	52	7	Fine	30.175	47	46	1	Ditto
F.	10	30.171	52	51	1	Cloudy	—.127	60	57	3	Cloudy	—.073	57	57	—	Slight Fog
S.	11	—.286	49	47	2	Very Fine	—.373	63	55	8	Very Fine	—.414	53	52	1	Fine
S.	12	—.456	56	56	—	Foggy	—.474	69	65	4	Ditto	—.458	49	49	—	Foggy
M.	13	—.426	50	50	—	Ditto	—.412	64	60	4	Ditto	—.355	57	56	1	Fine
T.	14	—.404	54	53	1	Cloudy	—.378	59	52	7	Ditto	—.404	49	48	1	Ditto
W.	15	—.377	46	46	—	Slight Fog	—.347	57	54	3	Cloudy	—.341	51	50	1	Cloudy
☽ Th.	16	—.284	51	50	1	Hazy	—.305	54	50	4	Ditto	—.286	51	49	2	Fine
F.	17	—.181	50	48	2	Cloudy	—.136	57	51	6	Ditto	—.189	46	45	1	Ditto
S.	18	—.337	44	42	2	Very Fine	—.331	56	45	11	Very Fine	—.284	37	37	—	Heavy Dew
S.	19	—.244	47	46	1	Ditto	—.202	52	46	6	Ditto	—.172	36	36	—	Ditto
M.	20	—.152	35	35	—	Cold & Foggy	—.156	57	54	3	Ditto	—.228	43	43	—	Dense Fog
T.	21	—.144	43	43	—	Thick Fog	—.108	60	56	4	Ditto	—.184	47	47	—	Foggy
W.	22	29.928	45	45	—	Foggy	29.887	67	56	11	Ditto	29.782	57	56	1	Very fine
○ Th.	23	—.743	56	56	—	Drizzly	—.779	53	53	—	Heavy Rain	30.001	47	45	2	Clear & Fine
F.	24	30.160	35	35	—	Thick Fog	30.152	52	48	4	Very Fine	—.156	43	43	—	Cloudy
S.	25	—.207	44	44	—	Slight Fog	—.358	60	56	4	Ditto	—.364	45	45	—	Foggy
S.	26	—.281	40	40	—	Thick Fog	—.240	51	51	—	Drizzly	—.198	49	49	—	Overcast
M.	27	—.320	49	49	—	Dull & Cloudy	—.360	53	53	—	Ditto	—.447	51	51	—	Showery
T.	28	—.452	50	50	—	Cold & Cloudy	—.391	54	50	4	Fine	—.503	42	40	2	Clear & Cold
W.	29	—.486	38	38	—	Slight Fog	—.406	52	47	5	Ditto	—.359	44	42	2	Fine
☾ Th.	30	—.342	42	39	3	Clear & Fine	—.318	47	42	5	Ditto	—.358	34	34	—	Cold&Cloudy
F.	31	—.316	41	41	—	Overcast	—.279	49	44	5	Cloudy	—.316	43	42	1	Ditto
		30.093	47·93	47.16	·77		30.089	58.16	53.19	4·97		30.107	47.87	47.22	.65	

OCTOBER.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	67	50	77	43	SW	Brisk	.05	A few days in the beginning of the month were rather unsteady, and on the night of the 5th a considerable quantity of rain fell. In general however the character of this month may be considered as having been very mild and seasonable. Slight fogs were of frequent occurrence in the mornings and at nights, which were succeeded by clear sunshine during the day. The Barometer upon the whole steady and high.
2	66	38	86	32	——	Ditto		
3	65	47	84	45	——	Ditto		
4	66	43	78	35	——	Ditto	.08	
5	66	51	81	47	W	Strong	.50	
6	63	48	76	42	SW	Ditto	.03	
7	62	49	75	43	W	Ditto	.11	
8	60	45	80	38	——	Ditto		
9	62	41	77	32	SW	Brisk		
10	60	57	64	45	S	Little		
11	66	45	87	39	SW	Ditto		
12	+70	42	84	36	W	Ditto		
13	69	47	+87	45	NW	Ditto		
14	60	40	80	32	N	Ditto		
15	58	47	63	45	NW	Ditto		
16	55	48	58	45	——	Ditto		
17	58	40	64	30	W	Brisk		
18	57	33	77	23	NE	Little		
19	56	32	80	22	E	Ditto		
20	57	38	73	32	NE	Ditto		
21	61	43	82	36	SE	Ditto		
22	67	54	82	50	W	Ditto		
23	57	32	57	25	S	Brisk	.34	
24	55	35	75	30	——	Little		
25	61	32	77	25	E	Ditto		
26	52	46	52	45	——	Ditto	.03	
27	54	49	54	45	NE	Ditto	.04	
28	54	32	66	25	E	Brisk		
29	56	35	69	32	——	Ditto		
30	48	—28	59	—20	NE	Little		
31	52	41	62	35	SW	Ditto		
	60	42	73	36			1.18	

Mean Pressure from the 3 daily observations 30.096 inches.
—— Temperature.....Ditto..... 51°.32
—— Dew Point.....Ditto..... 49°.19
—— Degree of Dryness....Ditto..... 2°.13
—— Degree of Moisture....Ditto..... 937
—— Force of Vapour.....Ditto..... 0.388 inch.
Least observed degree of Moisture..... 703
Maximum Temperature in the Shade.... 70°
Minimum Temperature in ditto..... 28°
Maximum Temperature in the Sun..... 87°
Minimum of Terrestrial Radiation..... 20°
Mean Temperature of External Air..... 51°

WINDS.

North.....	1 days.	N. East.....	4 days.
East.....	5 ..	S. East.....	1 ..
South.....	3 ..	S. West.....	8 ..
West.....	6 ..	N. West....	3 ..

31 days.

Amount of Rain ..... 1.18 inch.

NOVEMBER.

	Morning.						Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
	S. 1	30.311	45	44	1	Cloudy	30.259	50	46	4	Cloudy	30.251	47	45	2	Fine
	S. 2	—.285	46	44	2	Fine	—.260	53	44	9	Very Fine	—.249	48	47	1	Ditto
	M. 3	—.374	45	45	—	Slight Fog	—.335	53	48	5	Ditto	—.326	45	45	—	Foggy
	T. 4	—.214	42	42	—	Thick Fog	—.250	55	51	4	Ditto	—.222	40	39	1	Clear
	W. 5	—.196	38	37	1	Clear & Fine	—.172	50	45	5	Cloudy	—.153	38	38	—	Slight Fog
	Th. 6	—.138	40	39	1	Fine	—.108	50	48	2	Ditto	—.124	48	48	—	Drizzly
●	F. 7	—.160	41	41	—	Slight Fog	—.003	47	44	3	Cold & Cloudy	29.971	39	38	1	Clear
	S 8	29.923	34	32	2	Cold&Cloudy	29.777	39	35	4	Ditto	—.853	37	37	—	Stormy
	S. 9	—.839	30	29	1	Clear & Cold	—.728	44	40	4	Clear & Fine	—.655	34	34	—	Cold&Cloudy
	M. 10	—.564	35	35	—	Foggy	—.511	40	38	2	Cold&Cloudy	—.477	36	35	1	Clear
	T. 11	—.597	29	29	—	Dense Fog	—.614	36	36	—	Dense Fog	—.641	30	30	—	Dense Fog
	W. 12	—.661	25	25	—	Ditto	—.647	35	35	—	Foggy	—.699	29	29	—	Very Ditto
	Th. 13	—.717	30	30	—	Ditto	—.729	50	48	2	Fine	—.707	44	44	—	Cloudy
D	F. 14	—.539	45	45	—	Cloudy	—.490	52	52	—	Rainy	—.340	44	44	—	Showery
	S. 15	—.372	48	48	—	Showery	—.378	54	54	—	Showery	—.400	49	49	—	Cloudy
	S. 16	—.286	52	52	—	Rainy	—.241	53	53	—	Heavy Rain	—.438	50	50	—	Showery
	M. 17	—478	50	50	—	Cloudy	—.679	51	47	4	Fine	—.821	46	45	1	Fine
	T. 18	—.966	43	42	1	Fine	30 013	51	48	3	Ditto	30.033	37	37	—	Cloudy
	W. 19	30.011	47	46	1	Ditto	—.113	51	46	5	Ditto	—.214	43	43	—	Overcast
	Th. 20	—.216	45	45	—	Cloudy	—.159	53	47	6	Ditto	—.063	51	49	2	Clear
○	F. 21	29.983	52	50	2	Fine	29.925	58	51	7	Very Fine	29.912	56	53	3	Ditto
	S. 22	—.924	53	53	—	Cloudy	—.948	54	52	2	Cloudy	—.972	43	43	—	Cloudy
	S. 23	30 024	38	38	—	Slight Fog	—.955	52	49	3	Fine	—.846	49	48	1	Fine
	M. 24	29.725	46	46	—	Ditto	—.716	52	50	2	Ditto	—.813	46	46	—	Ditto & Clear
	T. 25	—.811	41	41	—	Ditto	—.926	53	51	2	Ditto	—.946	45	45	—	Heavy Dew
	W. 26	—.904	52	52	—	Drizzly	—.885	55	55	—	Drizzly	—.805	53	53	—	Wet&Stormy
	Th. 27	30.011	46	46	—	Fine	30.079	56	55	1	Overcast	30.113	50	50	—	Drizzly
	F. 28	—.101	52	51	1	Ditto	—.119	58	55	3	Very Fine	—.125	54	53	1	Clear
☾	S. 29	—.131	53	53	—	Cloudy	—.123	58	56	2	Fine	—.151	49	49	—	Cloudy
	S. 30	—.139	53	51	2	Fine	—.103	55	52	3	Ditto	—013	50	49	1	Ditto
		29 920	43.2	42.7	.5		29.908	50.6	47.7	2.9		29.911	44.3	43 8	.5	

NOVEMBER.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	58	44	76	40	W	Brisk		
2	54	41	+79	35	SE	Little		
3	57	37	75	30	E	Ditto		
4	56	34	73	27	SE	Ditto		
5	53	34	64	27	——	Ditto		
6	50	42	59	37	E	Ditto		
7	48	35	54	32	——	Brisk		
8	40	28	46	24	NE	Stormy		
9	48	31	59	28	——	Brisk		
10	40	26	42	21	——	Ditto		
11	36	—21	36	—19	S	Little		
12	37	29	37	21	SE	Ditto		
13	56	38	69	35	S	Ditto		
14	55	45	57	40	SE	Brisk	.22	
15	55	48	56	47	SW	Ditto	.10	
16	53	45	53	44	——	Ditto	.27	
17	52	35	66	27	W	Little		
18	51	33	64	25	NW	Brisk	.15	
19	52	40	64	36	——	Ditto		
20	54	47	64	42	W	Squally		
21	59	48	76	43	——	Brisk		
22	55	30	64	24	NW	Little	.03	
23	53	42	70	35	SW	Ditto		
24	54	36	69	30	S	Ditto		
25	56	43	63	36	——	Ditto		
26	57	45	57	40	NW	Strong	.24	
27	57	48	58	45	W	Brisk		
28	+60	50	75	45	——	Ditto		
29	59	46	70	39	NW	Ditto	.11	
30	55	42	58	40	——	Ditto		
	52.3	38.7	61.7	33.8			1.12	

With the exception of a few days of clear sunshine, the greater part of this month has been cloudy, but extremely mild for the period of the year. Fogs were not unfrequent; the most remarkable was that on the night of the 12th, which was so very dense that the mails were upwards of an hour behind their usual time of passing Turnham Green, and then were obliged to be conducted by torches.

Mean Pressure from the 3 daily observations 29.913 inches.
—— Temperature.....Ditto..... 46°.
—— Dew Point.....Ditto..... 44°.7
—— Degree of Dryness.....Ditto..... 1°.3
—— Degree of Moisture.....Ditto..... 931
—— Force of Vapour.....Ditto..... 0.328 inch.
Least observed degree of Moisture..... 738
Maximum Temperature in Shade ..... 60°
Minimum Temperature in ditto..... 21°
Maximum Temperature in the Sun..... 79°
Minimum of Terrestrial Radiation..... 19°
Mean Temperature of External Air..... 45°.5

Winds.

North.....0 days	N. East.....3 days
South .....4 ..	S. East.....5 ..
East .....3 ..	S. West.....3 ..
West .....6 .	N. West.....6 ..

30 days.

Amount of Rain.....1.12 inch.

DECEMBER.

		Morning.					Noon.					Night.				
1828.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
M.	1	30.314	43	41	2	Stormy	30.215	45	37	8	Stormy	30.311	35	32	3	Clear & Cold
T.	2	—.475	32	28	4	Cold & Frosty	—.390	39	32	7	Cold & Cloudy	—.313	36	35	1	Ditto
W.	3	—.198	40	37	3	Clear & Fine	—.184	50	45	5	Clear & Fine	—.156	48	46	2	Fine
T.	4	—.221	50	50	—	Overcast	—.190	55	54	1	Cloudy	—.289	51	50	1	Ditto
F.	5	—.215	49	49	—	Cloudy	—.104	52	50	2	Ditto	—.042	41	40	1	Clear & Fine
S.	6	29.945	40	40	—	Heavy Dew	29.791	52	49	3	Ditto	29.704	47	46	1	Cloudy
● S.	7	—.603	50	49	1	Fine	—.629	51	48	3	Fine	—.572	47	47	—	Stormy & Wet
M.	8	—.508	44	44	—	Overcast	—.248	46	46	—	Stormy & Wet	—.351	40	39	1	Clear & Fine
T.	9	—.727	42	41	1	Clear	—.818	44	40	4	Clear	30.028	38	37	1	Clear & Cold
W.	10	30.186	45	44	1	Fine	30.190	49	46	3	Fine	—.120	48	47	1	Stormy
T.	11	29.973	50	50	—	Stormy	—.243	53	52	1	Cloudy	—.362	42	42	—	Cloudy
F.	12	30.378	38	37	1	Cloudy	—.382	54	52	2	Ditto	—.390	51	51	—	Overcast
☽ S.	13	—.381	50	50	—	Drizzly	—.373	55	53	2	Ditto	—.416	45	44	1	Fine
S.	14	—.452	47	46	1	Fine	—.428	48	46	2	Fine	—.393	42	42	—	Cloudy
M.	15	—.305	42	42	—	Slight Fog	—.232	50	49	1	Overcast	—.204	46	46	—	Overcast
T.	16	—.126	46	46	—	Drizzly	—.108	53	50	3	Cloudy	—.196	49	49	—	Wet
W.	17	29.955	50	50	—	Ditto	29.876	53	53	—	Drizzly	29.814	50	50	—	Stormy
T.	18	—.601	53	53	—	Stormy, Warm	—.509	54	54	—	Warm, Stormy	—.516	48	48	—	Ditto
F.	19	—.760	45	42	3	Ditto	—.849	50	45	5	Fine	—.948	49	47	2	Cloudy
S.	20	—.988	50	48	2	Ditto	30.023	54	51	3	Cloudy, Fine	30.035	54	52	2	Fine
○ S.	21	30.070	53	51	2	Cloudy, Mild	—.082	55	51	4	Mild & Fine	—.105	54	53	1	Ditto
M.	22	—.125	53	53	—	Overcast	—.113	56	53	3	Cloudy	—.043	52	51	1	Cloudy
T.	23	—.179	50	50	—	Drizzly	29.827	52	51	1	Overcast	29.720	49	49	—	Wet
W.	24	29.675	46	46	—	Overcast	—.627	51	49	2	Fine	—.445	50	50	—	Drizzly
T.	25	—.443	43	43	—	Cloudy	—.477	46	45	1	Clear & Fine	—.584	35	34	1	Clear & Fine
F.	26	—.611	29	29	—	Clear & Frosty	—.573	43	40	3	Ditto	—.623	36	35	1	Ditto
S.	27	—.698	35	35	—	Ditto	—.745	41	38	3	Ditto	—.809	39	39	—	Overcast
S.	28	—.908	40	40	—	Foggy	—.933	45	44	1	Ditto	30.118	39	39	—	Wet
☾ M.	29	30.374	40	40	—	Ditto	30.398	40	40	—	Foggy	—.423	38	38	—	Foggy
Tu.	30	—.398	35	35	—	Ditto	—.330	45	44	1	Cloudy	—.271	39	38	1	Fine
W.	31	—.104	41	40	1	Fine	29.979	47	47	—	Drizzly	—.003	42	41	1	Clear
		30.028	44.2	43.5	0.7		29.995	49.29	46.90	2.39		30.009	44.51	43.77	.74	

DECEMBER.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	45	27	52	—15	N E	Stormy			
2	44	32	62	26	——	Brisk			The weather has been extremely mild during the whole of this month. The mean temperature is much higher than has been observed for many years, although few of the days were clear sunshine. The nights of the 7th, 8th, 17th, and 19th were very stormy, but particularly that of the 7th, when much lightning was observed accompanied with heavy thunder and rain. The storm commenced about 10 p. m. and continued until towards morning of the 8th.
3	52	43	52	40	S	Ditto			
4	55	44	56	40	——	Ditto			
5	53	32	54	25	——	Little			
6	52	45	53	42	S W	Brisk		.09	
7	53	44	63	39	——	do. Stormy		.43	
8	48	34	50	25	——	Ditto		.34	
9	45	35	55	27	W	Brisk			
10	50	45	64	40	——	Ditto		.05	
11	54	31	63	25	S W	Little			
12	54	48	59	45	W	Ditto			Mean Pressure from the 3 daily observations 30°.010 inches
13	55	40	59	35	S	Brisk			—— Temperature .....Ditto..... 46°.33
14	50	38	60	32	S E	Ditto			—— Dew Point ....Ditto..... 44°.72
15	50	45	51	40	——	Ditto			—— Degree of Dryness.....Ditto..... 1°.61
16	54	48	64	43	S	Ditto		.45	—— Degree of Moisture....Ditto..... 931
17	54	50	54	47	——	Strong		.09	—— Force of Vapour .....Ditto..... 0.328 inch.
18	54	45	63	43	W	Ditto		.05	Least observed degree of Dryness 752
19	52	47	60	41	——	Ditto			Maximum Temperature in Shade ..... 56°
20	55	49	57	47	——	Ditto			Minimum Temperature in ditto ..... 26°
21	55	48	57	45	——	Ditto			Maximum Temperature in the Sun ..... 65°
22	+56	47	+65	42	——	Brisk		.02	Minimum of Terrestrial Radiation ..... 15°
23	52	41	52	36	——	Ditto		.07	Mean Temperature of External Air ..... 44°.7
24	51	40	52	37	S W	Ditto		.09	
25	46	—26	48	18	E	Little			
26	44	30	55	25	——	Ditto			
27	44	32	57	26	S E	Ditto			
28	45	32	45	27	S	Ditto		.06	
29	40	32	40	30	——	Brisk			
30	45	36	45	32	S W	Ditto			
31	49	34	49	29	S	Ditto		.03	
	50.1	39.3	55.3	34.3				1.77	

WINDS.

North	0 days	N. East.....	2 days
South	9 ..	S. East	3 ..
East	2 ..	S. West	6 ..
West	9 ..	N. West....	0 ..

31 days.

Amount of Rain..... 1.77 inch.

Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1828; deduced from the Observations recorded in the preceding Journal.

1828.	Pressure.								Temperature.											
					Mean at				In the Shade.			Mean at				In Sun's Rays.		Terrestr. Radiation		
Months.	Max.	Min.	Med.	Range of Barom.	Morn.	Noon.	Night.	Mean of the three Observations.	Max.	Min.	Med.	Morn.	Noon.	Night	Mean of the three Observs	Max.	Min.	Max.	Min.	Med. of Sun and Radn.
Jan. ..	30.507	29.200	29.974	1.307	29.965	29.975	29.982	29.974	60	24	40.5	40.7	45.6	40.8	42.3	70	35	45	15	41.2
Feb...	30.521	29.048	29.854	1.473	29.855	29.859	29.851	29.855	60	23	41 6	40.0	47.3	40.7	42.6	69	33	45	17	41.
March	30.395	28.997	29.947	1.398	29.944	30.946	29.958	29.949	67	24	45.0	43.0	51.4	42.3	45.5	95	51	45	13	51.2
April .	30.383	29.229	29.799	1.154	29.798	29.798	29.802	29.799	75	29	49.18	48.8	56.4	47.2	50.8	94	53	46	19	53.
May ..	30.340	29.440	29.880	0.900	29.882	29.883	29.879	29.881	75	35	55.88	56.8	65.1	53.9	58.6	97	72	51	24	61.
June*.	30.337	29.323	30.007	1.014	30.002	30.007	30.019	30.009	85	44	62.18	61.7	71.3	60.2	64.4	105	68	55	40	67.
July ..	30.017	29.298	29.723	0.719	29.721	29.722	29.724	29.722	84	43	63.55	62.3	70.6	61.1	64.7	98	67	61	35	65.2
Aug. .	30.340	29.406	29.883	0.934	29.884	29.875	29.888	29.882	78	44	61.0	59.8	68.8	58.6	62.4	96	59	55	37	61.7
Sept. .	30.594	29.418	29.959	1.176	29.982	29.981	29.946	29.969	79	37	59.55	59.1	67.3	55.0	60.4	107	72	54	30	65.7
Oct...	30.503	29.348	30.096	1.155	30.093	30.089	30.107	30.096	70	28	51.0	47.9	58.1	47.8	51.3	87	52	50	20	52.2
Nov. .	30.374	29.241	29.913	1.133	29.920	29.908	29.911	29.913	60	21	45.5	43.2	50.6	44.3	46.0	79	36	47	19	45.2
Dec...	30.475	29.248	30.014	1.227	30.028	29.995	30.009	30.010	56	26	44.7	44.2	49.2	44.5	46.3	65	40	47	15	41.7
Aver.	30.398	29.266	29.921	1.132	29.922	29.919	29.923	29.921	70.7	31.5	51.63	50.6	58.4	49.7	52.9	88.5	53.1	50	23.6	53.8

* In June the Means are calculated from 29 days only.

1828.	Hygrometer indicating Dew Point.								Scale of the Winds.									Rain.	
	Mean Dew Point at			Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness.	Mean degree of Moisture.	Least degree of Moisture.											
Months.	Morn.	Noon.	Night.						N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	In.	Pts.
Jan. ..	40.1	43.4	40.2	41.2	0.292	1.1	965	759	1	4	3	3	7	8	5	0	31	3.71	
Feb...	39.2	44.2	40.1	41.1	0.292	1.5	960	682	2	3	3	4	3	3	5	6	29	0.94	
March	41.0	43.0	40.4	41.4	0.292	4.1	858	558	4	2	1	4	1	6	7	6	31	0.59	
April .	46.3	48.5	45.2	46.7	0.352	4.1	880	525	6	2	0	2	7	7	3	3	30	2.44	
May ..	52.9	54.2	51.9	53.	0.444	5.6	844	488	3	4	9	2	6	4	2	1	31	1.40	
June*.	57.7	58.3	57.4	57.8	0.457	6.5	798	457	0	3	5	2	0	8	9	3	30	1.94	
July .	60.4	64.2	59.9	61.5	0.577	3.1	907	515	1	0	1	1	6	12	6	4	31	4.38	
Aug. .	58.4	62.0	57.8	59.4	0.543	2.9	914	579	0	3	4	1	5	9	6	3	31	4.35	
Sept...	57.5	60.1	54.4	57.3	0.508	3.1	935	464	0	5	8	3	1	8	4	1	30	4.03	
Oct. ..	47.1	53.1	47.2	49.1	0.388	2.1	937	703	1	4	5	1	3	8	6	3	31	1.18	
Nov. .	42.7	47.7	43.8	44.7	0.328	1.3	931	738	0	3	3	5	4	3	6	6	30	1.12	
Dec...	43.5	46.9	43.7	44.7	0.328	1.6	931	752	0	2	2	3	9	6	9	0	31	1.77	
Aver.	48.9	52.1	48.5	49.8	0.400	3.0	905	601	18	35	44	30	52	82	68	36	366	27.85	

* In June the Means are calculated from 29 days only.

XIX. *An Account of the striped Hoosainee Persian Melon.* By Thomas Andrew Knight, *Esq. F. R. S. President.*

Read October 4, 1831.

I sent to the first September Meeting of the Horticultural Society, in the present year, a Melon, which, I supposed, would afford a favourable sample of the striped Hoosainee Persian variety. In weight, it nearly equalled the largest fruit which I raised of the variety; and it excelled every other in the brightness of its colour. But I have subsequently had reason to change my opinions respecting its merits; and I believe that the seeds of many different varieties of Melon were received from Persia under the same name; and that the first sent did not present a sample of the best variety of striped Hoosainee Melon.

I received from Mr. Lindley, in the last winter, a few seeds of the striped Hoosainee Melon, which had been introduced, in the year 1824, from Persia. Of these a single seed only vegetated, and that afforded so imperfect a plant, that it was not without great difficulty, and much care, that I was enabled to preserve it alive. But by engrafting two of its feeble lateral shoots upon two other plants growing in contiguous pots, I succeeded in obtaining three Melons. These were of rather small size, the weight of the largest not having exceeded four pounds. Their form was oval, the longer diameter exceeding the shorter nearly one third, and their colour dark green, in broad stripes, with narrow intervals of dull white, which became faintly yellow, as the fruit, which was much netted, approached maturity. The pulp was externally green, but more internally pale red, excessively juicy, and more perfectly melting,

than that of the finest ISPAHAN MELON; and its juice was more sweet and high-flavoured than I had ever previously found that of any other fruit of the species to be. I caused it to be tasted by a very great number of gardeners, and other persons, and all expressed the same opinion of its merits. The plant offered blossoms very freely, and would have borne fruit much sooner than it did, if I would have permitted it; but in this, as in all other cases, in which I wish to preserve the seeds of the fruit, I never suffer that to set, nor even blossoms to unfold, till the powers of the plant to nourish its fruit have been given time to accumulate. I send a few seeds of each of the three MELONS above mentioned; and I hope that the varieties will prove capable of being cultivated successfully in a common hot-bed. The fruit grew very slowly under my management, and it required a longer time, than ordinary, to ripen it; but all ripened well without shewing any disposition to burst, and remained sound and perfect a fortnight after they were gathered, and all became externally very soft without exhibiting any symptoms of approaching decay

As soon as I discovered that one very sickly plant alone was all that I possessed of the variety above described, I requested that a few more seeds might be sent to me; and from those which I received, I raised six plants. All those afforded striped fruit; but the pulp of five was perfectly white, and that of one, which possessed no merit, was deep yellow, as in common MELONS: and the fruit of almost every plant differed, to some extent, in form, and external colour. The pulp of four of the varieties, which I retained, was perfectly white, and very tender, and the juice very abundant, and very sweet: but the pulp was not in any of them what I could call melting. The MELON which I sent to the Society was, I thought, better ripened than those I retained; but I conclude that it possessed, to some extent, the same defects.

In my management of my plants and fruit, I certainly thought

more of giving perfection to the seeds, than to the individual fruits, and therefore probably gave water holding manure in solution too abundantly, and till too late a period; for my fruit all burst before it acquired perfect maturity: and I venture to hope that the imperfection of the pulp arose from the imperfect maturity of the fruit, in some degree, at least.

Having supposed that the six plants above mentioned would produce perfectly similar fruit, I employed the pollen of all indiscriminately; and therefore, as the pulp of one of them was yellow and worthless, I can not be responsible for the character of the fruit, which may be obtained from the seeds of the MELON, which I sent to the Society. I have, in consequence, sent a few seeds of one of the White-fleshed varieties, which will transfer unchanged the habits of the plant, which produced it, provided the varieties possess permanent habits; which, I fear, it does not.

I have added a few seeds of the sweet ISPAHAN MELON, which were taken, in the last season, from a large and excellent fruit of that variety, and which will, I do not entertain any doubt, afford fruit of equal excellence, under proper culture.

XX. *Upon the preparation and management of Plants during a Voyage from India. By* N. Wallich, *M. D. F. R. S. Corresp. Memb. of the Royal Institute of France, and Foreign Member of the Horticultural Society.*

Read July 19, 1831.

During my residence in India, I have had many opportunities of judging how far the various modes of packing plants for their voyage to Europe are successful, or otherwise; and subsequently having been so fortunate as to bring a considerable number of living plants to Europe, I have acquired additional experience upon this subject, from a personal inspection of the gradual influence of those successive changes of climate to which plants are exposed during their transmission. A further occasion, almost a year ago, of seeing the practical result of such directions as my own experience had suggested, has induced me to believe that some hints upon the most secure way of preparing plants for a voyage may not be without interest to the Horticultural Society.

The subject may be considered under the four following heads; 1. the preparing plants for the voyage; 2. the packing them; 3. their treatment during the voyage; and, 4. their management upon their arrival.

With regard to preparing plants for a voyage, it is of great importance to attend to the age and strength of the subjects, a consideration which does not generally meet with the attention it deserves. Very often plants of tender age, or already weak and sickly, or grafts only recently, or imperfectly united to their stock, are crowded together hastily into the cases in which they are to perform their voyage, and they are then put on ship-board without being sufficiently rooted. No wonder that plants thus treated

should soon perish, or, if indeed a few of them should survive their transmission, that they should be so sickly upon reaching Europe as to perish presently after. I would recommend in the first place that plants already advanced in age, with a strong root and thick stem, should invariably be selected, and that only such grafts be chosen as have already been firmly established for two or three years on old healthy stocks.

In packing, the following directions particularly require to be observed. It has been the custom to make the chests very large, and to crowd into such chests as many plants as they will hold; this practice has had, amongst others, this bad effect, that Captains however well disposed at first to pay the plants every attention, have soon found the cases troublesome, unwieldy, and unsightly. No case should be more than three feet long, eighteen inches in width, and sixteen in depth below the roof; I have taken these dimensions from a due consideration of the places where plants are generally stowed on board ship, viz. on the poop, or in front of the cuddy. The depth of the roof should be sixteen inches more, so that the shutters, when opened, will be the same depth as the sides of the boxes. The breadth of the upper rail should be five inches, which will admit of a piece of *painted* canvas sufficiently large to cover the whole sides, to be rolled upon it, and fixed to each side.

I would here observe that I would on no account use the common tarred canvas, which is a very imperfect defence against rain and sea spray, and in the next place, that whenever a number of chests are to be placed in a row close to each other, it would be preferable to use one piece of canvas instead of many. Some attention should also be paid to the neatness of the appearance of the cases, as Captains are very unwilling to allow the deck to be occupied by unsightly objects; they should be well clamped together with iron and painted. On no account should holes be bored in the ends for passing rope handles through; the latter are perfectly useless. The

roofs should be glazed either with stout glass or with the Chinese oyster shell; or with plates of thick talc.

Each plant should have a separate square pot made of wood, of such a size that eight should be contained in each case; they should not fit too tightly together, but should be so contrived that any one may be lifted out without disturbing the remainder. This renders it easy to replace deaths if the ships touch at any port on their voyage. The pots should have three or four holes bored in their bottoms: but there should be no holes in the bottom of the chest; for it is at such apertures that rats on ship-board always commence their depredations, and there is no advantage whatever in the holes.

Between the bottom of the pots and the bottom of the case, should be a layer three inches deep of broken glass and pebbles; the former renders it impossible for vermin to establish themselves in the cases. The cases should be raised two inches from the deck by little feet.

In the treatment on board, too much attention cannot be given to the necessity of exposing the plants to the open air at all times when the weather will admit of it. As a general rule, it may be said that the boxes should be kept shut as long as the sun is above the horizon, and opened during the night, whenever the weather appears steadily fine. In cases where the chests are placed under the awning, the former precaution would be less necessary, and a due consideration of the changeableness of weather at sea, will of course ensure particular attention to the closing the roofs, if bad weather should come on. Whenever a shower falls the plants should be fully exposed to it, taking care at the same time that too much moisture be not admitted.

With regard to watering, it is desirable that the Captain should provide for each plant one pint per diem; because, although in rainy weather no water is required, yet if the weather is very hot, a larger allowance than this may be necessary. The water should be given

in such a manner that the leaves and branches may be refreshed, besides the root ; *part* should therefore be sprinkled over them, the rest poured on the earth. Generally, half a pint of water should be sprinkled over the plants before you shut them up in the morning, and the same quantity when the cases are opened in the evening; a greater quantity will however of course be given in hot dry weather than when the sky is overcast and the air moist. It has happened in the large collection brought home by myself, as well as in another which came subsequently in the same ship, that such has been the vigour with which plants thus treated grew, that it was frequently necessary to have recourse to the knife in order to check their luxuriance.

Upon their arrival in England the plants should not be immediately taken from their pots, but allowed to remain in them in a conservatory or hot-house, according to the nature of the plants themselves, or the season of their arrival. Water should be sparingly given, and the plants well cleansed from the dust and other matters which may be collected on their leaves during their voyage.

Such are the most important points to which I think attention should be given. In addition, I would remark that, after all, the success of a consignment of plants depends so much upon the good will of the Captain, and his disposition to promote the objects contemplated, that unless both interest and zeal concur even the best arrangements will be frustrated. The Officers of the Society are fully acquainted with the unusual success that attended the two large consignments above alluded to; both arrived in the ship Orient, Captain Thomas White, in a state of preservation, which, I believe, has rarely, if ever, been equalled. On the first occasion, I shared with him the management: on the second, he had the sole care of the collection; but such was the incessant zeal and vigilance of this gentleman, that the success is in both cases to be entirely attributed to him.

XXI. *Some account of a New Cherry, called the Early Purple Guigne. By Mr.* Robert Thompson, *Under-Gardener in the Fruit Department of the Garden of the Society.*

Read June 1, 1830.

The best early Cherry hitherto known in this country has been the May Duke, the merits of which will doubtless long continue to be appreciated. Several others of great excellence, ripening about the same time, or soon after the above, have of late been added to the choicer collections of this class of fruits; among which, in particular, Knight's Early Black and the Black Tartarian are of the highest merit.

But as the difficulty of procuring fruit is greater in May and the beginning of June, than at any other period of the year, the Early May Cherry, a worthless variety, that ripens or rather colours about a week before the May Duke, has been long cultivated as its early substitute, although it really does not possess a single good quality. If then a sort should be produced, superior to the Early May in size and quality, and which ripens even earlier, such a kind would be an acquisition of the greatest importance. I have found these qualities in a foreign seedling, which may be called the Early Purple Guigne.

This variety is probably of recent origin on the Continent, and its early introduction to this country by the Horticultural Society was entirely accidental; it having been received in a collection from M. De Candolle of Geneva, in 1822, under the name of the Griotte de Chaux, which is a late Cherry of the nature of a Morello. This being the case, and its foreign name not having been found, it was temporarily called, in the Garden, the *Early Purple Griotte*, under which name it has since been distributed.

The Early Purple Griotte Cherry.

Writers are much divided, on the Continent, with regard to those principal divisions of Cherries, of which the Griottiers form one, and among which, the sort for which this was sent ought to have ranked, but with which it clearly does not agree. The Griottiers were formerly written Agriottiers, probably from the sharpness of their juice, a quality which prevails more or less in all of them; the Morello tribe is included in that division, along with other slender wooded varieties, in all of which the petioles of the leaves are short and erect, compared with those of other kinds of Cherries.

In none of these peculiarities does the Early Purple Guigne accord with the Griotte tribe. Its habit is very different; the petioles of its leaves instead of being short, are remarkably long and slender, and consequently the leaves are drooping. But with another division called by the French Guigniers, a very different tribe from our Northern Geans, it agrees in every respect; indeed, there is some probability of its being the *Guigne noire hâtive* of the Catalogue of the Messrs. Baumann, Nurserymen at Bollwiller, and of the Taschenbuch; a kind which is stated in the latter work to be "A new Sort, much to be recommended; the tree grows large." We do not possess a tree with that name in the Garden, and the little that is said about it is too vague to enable me to form any positive opinion upon the subject. I may, however, remark that M. De Candolle had his trees supplied by Messrs. Baumann, and that it is certainly no other sort mentioned in their Catalogue.

The branches are spreading, moderately strong, dark brown, and sprinkled with a silvery cuticle. The leaves are oblong, drooping, with waved margins, unequally and rather coarsely serrated; the veins beneath small, but sharp and prominent. The petioles are long and rather slender, dark red, with numerous scattered hairs, which are also found on the midrib and veins of the under surface. The glands upon the petioles are large and reniform; the flowers appear very early, and are larger than in the generality

of Cherries; their filaments are slender, and some of them are longer than the pistillum; the petals are thin, oblong-oval, and scarcely imbricated. The fruit ripens very early, is of a good size, somewhat heart-shaped and compressed; its footstalks are long, of moderate thickness, rather deeply inserted in an almost round cavity; its skin is of a shining dark purple colour when the fruit is well ripened. The flesh is purplish, juicy, tolerably soft and tender, with a sweet rich flavour. The stone is middle-sized, of a roundish-ovate figure.

Ripens on an East or West wall in the first week in June. On a south aspect it may be obtained in the end of May.

That this sort is highly deserving of cultivation, being the earliest yet known, will best appear by comparing it with the May Duke and Early May, grown in similar situations; the former is quite green, the latter is barely ripe, when this is in full perfection. It may be said to ripen about a fortnight earlier than the May Duke; and to be fully equal to it in quality.

The accompanying figure is from a drawing by Mrs. Withers.

XXII. *On the Means of Prolonging the Duration of valuable Varieties of Fruits.* *By* THOMAS ANDREW KNIGHT, *Esq. F.R.S. President.*

Read May 3, 1831.

THE fact, that all trees of the same variety of fruit, where each tree partakes necessarily of one common life, are in their habits strongly connected with those of the first original tree of the variety, is, I think, placed beyond the reach of controversy. None can be made to produce blossoms, or fruit, till the original tree has attained its age of puberty; and under our ordinary modes of propagation by grafts, and buds, all become subject, within no very distant period, to the debilities and diseases of old age. It is therefore desirable that the planter should know at what periods of their existence varieties of fruits are most productive and eligible; and by what means (if any exist) the deterioration of valuable varieties may be prevented or retarded. I was formerly inclined to believe that grafts taken from very young seedling trees, as soon as the qualities of their produce could be known, would shew more disposition to grow, than to produce fruit, and I had previously satisfied myself that the blossoms of old and debilitated varieties of fruits were extremely impatient of cold, and unfavourable weather; and I was thence led to infer that each variety possessed its greatest value in its middle age. But subsequent experiment and observation have compelled me to draw a different conclusion, and I believe that in vegetable, as in animal life, the most prolific period is that which immediately succeeds the age of puberty.

I have made a good many experiments with a view of ascertain-

ing this point, of which the following are amongst the most satisfactory. I took, in the summer of 1828, some buds from the extremities of the leading branches of seedling Pear trees, which, being nearly twenty years old, had in the preceding autumn produced their first fruit. The buds were in July inserted in stocks, which had sprung from seeds in the preceding spring, and were then only four months old. The trees are consequently three years old now, dating from the period when they sprang from the ground; and many of them, though they have not been transplanted, or subjected to any peculiar mode of treatment, have produced blossoms, some of them very abundantly and vigorously, in the present spring. I never previously saw, and I do not think that any other person has seen, in this climate, fruit produced by Pear trees at so early an age. I had previously made the same experiment with Apple trees with the same results.

Some branches of a Plum tree, which had not attained the age of puberty, were employed as layers; and these, as I expected they would, very freely emitted roots; but very contrary to my expectations, I found that the young shoots, which these layers had produced, afforded, in the following spring, much blossom. The variety of Plum which was the subject of this experiment, is, I have reason to believe, exceedingly productive of blossom, but I doubt much whether such blossoms would have appeared if the variety had been a century old. The only inference, however, which I wish to draw from the foregoing premises is, that grafts or buds taken from the bearing branches of very young seedling trees, afford trees capable of bearing freely at a very early age; as it would be waste of time to offer facts or arguments in proof that such trees would continue to grow with health and vigour.

Any information, which the Gardener might derive from knowledge of the preceding facts, would be of very little value if every part of seedling trees were in the same degree affected by age:

but it is not so; and the decay of the powers of life in the roots of seedling trees is exceeding slow comparatively with the bearing branches. Scions, obtained from the roots of Pear trees of two hundred years old, afford grafts which grow with great vigour; and which in many cases are covered with thorns, like young seedling stocks, whilst other grafts taken, at the same time, from the extremities of the branches of such trees present a totally different character, and a very slow and unhealthy growth. I do not, however, conceive that any scion which thus springs from the root of an old tree, possesses all the powers of a young seedling tree; but it certainly possesses no inconsiderable portion of such powers; and I have proved such scions to be capable of affording healthy trees of a considerable size.

If grafts or buds were taken from such scions, on their first emission, much time would elapse before any blossom would be produced: but if buds were not taken from such scions till the branches attained the age of puberty, no loss of time whatever would subsequently occur.

The branches of the Plum tree, in the experiment abovementioned, emitted roots just at the period when they had attained the age of puberty; and I do not doubt but that scions from the roots of these will spring from the soil in full possession of all the powers attached to the branches from which they derived their existence. My own experience leads me to think that trees of the Pear, the Apple, and the Plum, might be better raised by layers and cuttings of the roots, than by the methods usually practised, and at less expense.

The Garden of the Society contains many varieties of fruits, which, I believe, to be extremely valuable as well as new, and the preservation of these permanently in their pristine, and present, state of health and vigour, appears to be an object of great importance. And the decay of many varieties (such as the Cornish Gillyflower

Apple, which in my estimation is and always was without a rival in the climate of England) might be greatly retarded by propagating it from scions which have recently sprung from the trunks of old trees, in obedience to the instructions of Virgil (whose authority is however generally of little value) and probably of Hyginus, "summa ne pete flagella."

XXIII. *On the Propagation of the Balsam (Impatiens Balsamina) by Cuttings.* *By Mr.* G. John Towers, *C. M. H. S.*

Read October 18, 1831.

At a period when science is spreading with such rapid strides, as to render it extremely difficult for the most attentive observer to keep in view the progress of its extension, it will scarcely be prudent for any man of modest pretensions, to claim the merit of having made a discovery. The subject of this Paper is new indeed to the writer, though, in all probability, the practice to be detailed, is familiar to numbers of scientific Horticulturists. Still, however, it is certain that, neither in the course of reading nor in that of conversation, has he received a hint which would lead him to judge that the experiment about to be mentioned, has been undertaken by any one before him : the claim of novelty, may therefore in one point of view, be admitted.

To lay aside the third person, I shall shortly observe that, early last April, I received from a friend a small packet of very fine Balsam seeds that had ripened at Madras, and were sent over in 1830, by his son. I sowed a portion of these seeds in rich earth, and placed the pot in a brick glazed pit that was heated by a deep bed of tree leaves. The seeds germinated, the plants grew rapidly, and were moved into larger pots, and kept under glass till they attained a very considerable size ; but *scarcely any of them exhibited, throughout the summer, the slightest appearance of producing flowers.*

Finding this to be the case, I took a small cutting at the extremity of one of the upper lateral shoots, about three inches long, and not so thick as a goose-quill. I cut it off just below a leaf,

removed that leaf, and planted the cutting an inch deep in a very light sandy compost, similar to bog-earth; plunged the pot (a 60) in the leaf bed, and covered the cutting with a glass. The earth was slightly watered, and subsequently kept in a moist state. This was done on the 28th of August; by the 12th of September the cutting had formed roots, and was growing; the glass was removed and flower buds soon after became apparent.

This day, the plant has been removed to my study, it is beside me, and has on it, two expanded semi-double flowers; the ground colour a French white, beautifully striped and blotched with a full rich pink. Several other flower-buds are formed, and will doubtless expand.

The plant is slender, eleven inches high, and is rather drawn up, owing to the want of sun-light and a free exposure to the air. Four or five other cuttings of a Balsam were taken off in the middle of September; they appear to have struck, and each has protruded blossoms: they are now growing freely.

I confess that my object in taking these cuttings was not to produce blossoms, but simply to preserve if possible, the plants throughout the winter. I hoped they might strike root; and thus, in a degree, counteract the *annual* nature of the plant; or, in other words, cause it to survive, by converting one of its members into a perfect vegetable body. The early blossoming of the first cutting, will I fear frustrate my intention; but as I found it inclined to flower, I resolved to let the blossoms expand, as the parent has, to this day, evinced no sign of producing bloom.

I have just pinched off all the flower-buds from the second set of cuttings, with a view to preserve the plants according to my original intention.

Pinkney's Green,
Oct. 12, 1831.

XXIV. *The result of some Experiments on the Growth of Potatoes, tried in the Garden of the Society in the year* 1831. *By* JOHN LINDLEY, *Esq. F. R. S., Assistant Secretary.*

Read November 15, 1831.

IN the Seventh Volume of the Society's Transactions, page 405, there is a highly important Paper by Mr. KNIGHT upon the cultivation of the Potatoe, in which he has showed that the usual mode of treating that plant is by no means such as is best calculated to ensure the greatest produce; and that by taking care that full-grown tubers are used for seed, and that all the foliage is fully exposed to light and air, a crop much larger than had previously been supposed possible can be procured with certainty. After detailing his mode of management Mr. KNIGHT states that in one case he obtained 18 tons 14 cwt. 70 lbs. and in another, 24 tons 6 cwt. 98 lbs. from an acre of ground. This so much exceeded every thing that had previously been heard of, crops of Potatoes varying from four to twelve tons an acre, and never exceeding the latter weight, that doubts were by some entertained of the exactness of Mr. KNIGHT's conclusions; so that, although any person well acquainted with the laws of vegetation would have understood that the result was no more than might have been expected, yet for the sake of producing further evidence of the fact, it was thought desirable that some enquiry into the subject should be instituted in the Garden of the Society.

Accordingly, at the desire of Mr. KNIGHT, twenty seedling varieties of the Potatoe raised by himself, were made the subject of an experiment. A single tuber of each was accurately weighed, and then planted in the centre of a piece of ground four feet square,

five inches below the surface, without manure; the soil having the year before been manured for a crop of Mangel Wurzel.

It was expected that this would prove as large a space as any of the kinds would occupy, and that therefore the rate of increase of each would be accurately determined, because their leaves would be as fully exposed to light and air as could ever be practicable.

At the same time, for the sake of comparison, a selection of twenty-five of the best or most well known sorts was taken from the Society's collection and treated in a similar way; with this exception only, that as the tubers we had reserved for planting were in all cases small of their kind, two were used instead of one. These two were also accurately weighed.

In order to secure the greatest possible accuracy in the experiment, I took the precaution to weigh the tubers myself in a pair of excellent scales furnished with drachm weights.

During the summer the plants were earthed up three times; but no other care was taken of them.

The tubers were all taken up in October, and after having been carefully washed and dried were again weighed; but it was not thought necessary to use other than common scales and weights, nor indeed would it have been easy, from the bulk of the potatoes, to have done so.

The result of the observations are combined in the following Table A, in which the weights planted and taken up, are reduced to drachms for the sake of the more clearly pointing out the rate of increase; to this is added a computation of the produce of each sort per acre, under the mode of treatment made use of.

TABLE A.

No.	Name.	No. of roots planted	Weight planted.	Number taken up		Weight taken up.	Produce per acre.	Rate of increase.
				Large	Small			
			lb. oz. dr. drams			lb. oz. dr. drams.	lbs. tons cwts. lbs.	
1	Early Walnut-leaved .	2	0 2 4 or 36	12	1	3 15 0 or 1008	9,718 or 4 6 86	1 : 28.00
2	Early Manley . . .	2	0 7 9 — 121	30	6	5 0 0 — 1280	13,610 — 6 1 58	1 : 10.57
3	Shaw	2	0 2 8 — 40	7	1	1 7 0 — 368	3,913 — 1 14 105	1 : 19.20
4	Early Flat White . .	2	0 1 9 — 25	5	4	1 13 0 — 464	4,934 — 2 4 6	1 : 18.56
5	Hâtive de Juin . . .	2	0 2 3 — 35	10	6	3 11 0 — 944	10,039 — 4 9 71	1 : 26.97
6	Philadelphia	2	0 1 8 — 24	6	4	1 8 8 — 392	4,168 — 1 17 24	1 : 16.32
7	Early Kidney . . .	2	0 3 5 — 53	14	9	3 4 0 — 832	8,848 — 3 19 0	1 : 15.66
8	Yellow	2	0 2 0 — 32	9	10	2 1 0 — 528	5,615 — 2 10 15	1 : 16.50
9	De Hollande Jaune .	2	0 2 1 — 33	7	8	1 1 0 — 272	2,892 — 1 5 92	1 : 8.24
10	Cornichon jaune dit la Parmentier .	2	0 1 13 — 29	9	5	1 3 8 — 312	3,318 — 1 9 70	1 : 10.75
11	Jaune Blanche . . .	2	0 2 4 — 36	5	4	1 6 0 — 352	3,743 — 1 13 47	1 : 9.75
12	Wellington	2	0 1 13 — 29	6	1	1 4 0 — 320	3,403 — 1 10 43	1 : 11.03
13	Blue red marbled . .	2	0 1 8 — 24	6	—	1 4 0 — 320	3,403 — 1 10 43	1 : 13.33
14	Violette de M. Sageret	2	0 2 8 — 40	5	2	1 1 0 — 272	2,892 — 1 5 92	1 : 6.80
15	Onion	2	0 1 4 — 20	13	8	2 4 0 — 576	6,125 — 2 14 77	1 : 28.80
16	Old Apple	2	0 1 13 — 29	7	—	1 3 0 — 304	3,232 — 1 8 96	1 : 10.48
17	Lanckman's red . . .	2	0 2 4 — 36	8	3	2 10 0 — 672	7,146 — 3 3 90	1 : 18.88
18	La Divergente . . .	2	0 2 5 — 37	19	—	17 14 0 — 4544	48,555 — 21 13 59	1 : 122.81
19	La Dégénérée . . .	2	0 1 12 — 28	24	7	7 1 0 — 1808	19,227 — 8 11 75	1 : 64.57
20	Long red Kidney . .	2	0 1 8 — 24	12	9	7 15 0 — 2132	21,609 — 9 12 105	1 : 88.83
21	Holland	2	0 3 0 — 48	5	6	0 13 0 — 208	1,212 — 0 10 92	1 : 4.33
22	Golden	2	0 1 9 — 25	24	25	4 1 0 — 1040	11,060 — 4 18 84	1 : 41.60
23	Pied Golden	2	0 2 1 — 33	12	5	1 11 0 — 432	4,594 — 2 1 2	1 : 13.09
24	À feuilles de Haricot	2	0 3 4 — 52	16	9	6 14 0 — 1760	18,717 — 8 7 13	1 : 33.84
25	Salmon-coloured Kidney	2	0 8 9 — 137	32	25	17 12 0 — 4512	48,324 — 21 11 52	1 : 33.73
26	Mr. Knight's, No. 1.	1	0 9 4 — 144	23	30	10 1 0 — 2576	27,395 — 12 4 67	1 : 17.88
27	. . . . . 2.	1	0 8 8 — 136	13	17	15 1 0 — 3856	41,007 — 18 6 55	1 : 28.35
28	. . . . . 3.	1	0 6 4 — 100	9	—	1 11 8 — 440	4,679 — 2 1 87	1 : 4.40
29	. . . . . 4.	1	0 3 13 — 61	19	8	12 6 0 — 3168	33,691 — 15 0 99	1 : 51.93
30	. . . . . 5.	1	0 7 9 — 153	5	3	2 0 0 — 512	5,444 — 2 8 68	1 : 3.34
31	. . . . . 6.	1	0 6 4 — 100	27	20	11 4 0 — 2880	30,638 — 13 13 62	1 : 28.80
32	. . . . . 8.	1	0 5 9 — 89	8	15	5 10 0 — 1440	15,319 — 6 16 87	1 : 16.06
33	. . . . . 10.	1	0 5 9 — 89	13	—	10 2 0 — 2592	27,565 — 12 6 13	1 : 29.12
34	. . . . . 12.	1	0 5 13 — 93	15	2	10 8 0 — 2688	28,587 — 12 15 27	1 : 28.90
35	. . . . . 15.	1	0 8 8 — 136	21	26	10 5 0 — 2640	28,075 — 12 10 75	1 : 19.41
36	. . . . . 16.	1	0 5 0 — 80	27	7	14 6 0 — 3680	39,135 — 17 9 47	1 : 46.00
37	. . . . . 17.	1	0 7 8 — 152	26	4	11 12 0 — 3008	32,000 — 14 5 80	1 : 19.78
38	. . . . . 18.	1	0 6 1 — 97	10	5	6 13 0 — 1744	18,547 — 8 5 67	1 : 17.97
39	. . . . . 19.	1	0 4 0 — 64	20	11	4 11 0 — 1200	12,761 — 5 13 105	1 : 18 75
40	. . . . . 20.	1	0 7 4 — 148	24	15	10 6 0 — 2656	28,145 — 12 11 33	1 : 17.94
41	. . . . . 21.	1	0 8 1 — 129	19	4	8 4 0 — 2112	22,360 — 9 19 72	1 : 16.37
42	. . . . . 22.	1	0 8 4 — 132	15	13	5 4 0 — 1344	14,293 — 6 7 69	1 : 10.18
43	. . . . . 23.	1	0 5 9 — 89	9	7	4 12 0 — 1216	12,931 — 5 6 59	1 : 13.66
44	. . . . . 24.	1	0 6 0 — 96	21	7	8 10 0 — 2208	23,481 — 10 9 73	1 : 23.00
45	. . . . . 25.	1	0 7 0 — 144	8	6	2 1 0 — 528	5,615 — 2 10 15	1 : 3.66

From this table it appears that while many of Mr. KNIGHT's seedlings yield a considerable increase, the rate being in four cases as 1 to 28 or 29, in another case as 1 to 46, and in another, as high as 1 to 51.93, yet that the highest rate is exceeded by one English and two French sorts. In a French kind called La Dégénérée, it is as 1 to 64.57; in the Long Red Kidney, as 1 to 88.83; and in a French sort called La Divergente, as 1 to 123 nearly—a most remarkable instance of reproductiveness.* On the other hand it may be noted that although many of the old sorts have given a very small increase, one having scarcely yielded more than fourfold, yet that two of Mr. KNIGHT's are even more unproductive, the rate of increase being in the one case as 1 to 3.34, and in the other as 1 to 3.36.

But although the rate of increase is thus against Mr. KNIGHT's seedlings, a circumstance that may perhaps be owing to the much larger size and greater weight of the tubers in his than in the old varieties, yet the produce per acre is as much in his favour. And this is a very important fact, inasmuch as it seems to show, what is indeed not by any means improbable, that although small tubers are capable of yielding under fitting conditions, as great a rate of increase, or even a greater than large tubers, yet that in taking the produce per acre, the heavy, sound, fully formed tuber has much the advantage.

Among the twenty-five old varieties, five only exceeded 8 tons an acre, of which one produced more than 9 tons, and two more than 20 tons; in one of these latter cases the rate of increase was only as 1 to 33.73. There were no fewer than ten sorts, that produced less than two tons per acre. The twenty-five kinds averaged a little more than $4\frac{1}{2}$ tons per acre.

Among Mr. KNIGHT's twenty seedlings, thirteen exceeded eight tons an acre; of which nine exceeded twelve tons, and one eighteen

* Of these varieties, La Dégénérée is very large, reddish, and apt to be watery; the Long Red Kidney is better, but not first rate; La Divergente is roundish, yellow, mealy and good; but they are all perhaps better adapted to Agricultural, than to Horticultural purposes.

tons. None yielded less than two tons, and only 3 so little. The twenty kinds averaged more than ten tons an acre.

It should here be remarked that the Potatoe growers about London reckon upon from eight to ten tons an acre, considering eight tons a fair crop, and ten tons a large one. Certain sorts, such as the Oxnoble and the Wellington, will occasionally yield twelve tons. One of Mr. KNIGHT's (No. 17) yielded above fourteen tons; another (No. 4) above fifteen tons; another (No. 16) above seventeen; and another (No. 2) above eighteen; but none of those equalled the Salmon coloured Kidney, and the Divergente, both of which produced at the rate of above twenty-one tons.*

Such are the results deduced from a trial of forty-five sorts, all cultivated in spaces four feet square for each plant. But it is obvious that in practice this distance is only applicable to large, tall, strong growing sorts, such as the generality of Mr. KNIGHT's seedlings, and that it is not fair to judge of dwarf weak sorts, producing few stems and leaves, by such a standard. The distance at which it may be most advantageous to plant Potatoes, will be determined by the natural habits of a variety.

It is therefore an interesting enquiry to determine how nearly Mr. KNIGHT's average is approached by the old varieties grown upon a different plan, and how far the produce of each is affected by a cultivation of a greater number of plants in the same space. For this purpose I caused sixteen feet square of the principal part of the old varieties, planted in rows two feet apart, and a foot from plant to plant, to be taken up, washed, dried, and accurately weighed, from which another Table (B) has been prepared, in which a comparison is instituted between the produce per acre of the sorts respectively under the two methods of culture; to which has been added an estimate of their rate of increase under their peculiar circumstances.

* The Salmon-coloured Kidney is an excellent white mealy sort; of Mr. KNIGHT's, No. 17 is rather large, but firm, white, mealy and excellent; No. 4 is very large, but solid, and of excellent quality; No. 16 is large, solid, mealy, white, delicate, and one of the best Potatoes I know: in substance and appearance it resembles a White Yam, for which reason we have called it the *Downton Yam* Potatoe; No. 2 is yellowish, firm and mealy, but not first rate.

At the time Mr. KNIGHT's seedlings were planted, no other object was contemplated than that of determining the respective rates of increase of the varieties submitted to trial; and therefore I am unfortunately unable to speak with absolute confidence of the accuracy of the rate of increase indicated by this Table. In order to gain a knowledge of the weight planted, I have been obliged to assume that the tubers selected for common culture weighed on an average the same per tuber as those used in the actual experiment; but as the sample from which the tubers were in both cases taken was extremely uniform, I have no reason to suppose that the weight, estimated in Table B to have been planted, is materially at variance with accuracy.

TABLE B.

No.	Name.	Two Plants in the centre of four feet square.		Eight Plants in a row, eight feet long, and two feet from the adjoining row.				
		Rate of increase as stated in Table A.	Produce per acre as in Table A.	Number planted.	Weight planted estimated.	Weight taken up.	Produce per acre.	Rate of increase.
			tons. cwt. lbs.		lb. oz. dr. drams	lb. oz. dr. drams	tons cwt. lbs.	
1	Early Walnut-leaved .	1 : 28.00	4 6 86	8	0 9 0 or 144	9 2 0 — 2336	11 1 90	1 : 16.22
2	Early Manley	1 : 10.57	6 1 58	8	1 14 4 — 484	12 11 0 — 3248	15 8 45	1 : 6.71
3	Shaw	1 : 9.20	1 14 105	8	0 10 0 — 160	8 15 0 — 2288	10 15 52	1 : 14.30
4	Early Flat White . .	1 : 18.56	2 4 6	8	0 6 4 — 228	5 3 0 — 1328	6 5 72	1 : 5.82
5	Hâtive de Juin . . .	1 : 26 97	4 9 71	8	1 1 8 — 280	9 14 0 — 2528	12 0 4	1 : 9.02
6	Philadelphia	1 : 16.32	1 17 24	8	0 6 0 — 96	10 5 0 — 2640	12 10 75	1 : 27.50
7	Early Kidney . . .	1 : 15.66	3 19 0	8	0 13 4 — 212	5 14 0 — 1504	7 2 91	1 : 7.09
8	Yellow	1 : 16 50	2 10 15	8	0 8 0 — 128	8 7 0 — 2160	5 5 11	1 : 16.87
9	De Hollande Jaune .	1 : 8.24	1 5 92	8	0 8 4 — 132	4 8 0 — 1152	5 9 43	1 : 8.72
10	Cornichon Jaune dit la Parmentier .	1 : 10.75	1 9 70	8	0 7 14 — 126	5 6 0 — 1376	6 10 73	1 : 10.92
11	Jaune Blanche . . .	1 : 9.75	1 13 47		0 9 0 — 144	4 13 0 — 1232	5 16 109	1 : 8.55
12	Wellington	1 : 11.03	1 10 43	8	0 7 14 — 126	4 4 0 — 1088	5 3 34	1 : 8.63
13	Blue Red marbled . .	1 : 13.33	1 10 43	8	0 6 0 — 96	5 5 0 — 1360	6 9 15	1 : 14.16
14	Violette de M. Sageret.	Not planted.		—				
15	Onion	1 : 28.80	2 14 77	8	0 5 8 — 80	7 7 0 — 1904	9 0 88	1 : 23.80
16	Old Apple	Not planted.		—				
17	Lanckman's Red . .	1 : 18.88	3 3 90	8	0 9 0 — 144	5 14 0 — 1504	7 2 91	1 : 10.44
18	La Divergente . . .	1 : 122.81	21 13 59	8	0 9 4 — 148	16 8 0 — 4224	19 19 32	1 : 28.53
19	La Dégénérée . . .	1 6 4.57	8 11 75	8	0 7 10 — 122	7 8 0 — 1920	2 2 34	1 : 15.73
20	Long Red Kidney . .	1 8 8.83	9 12 105	8	0 6 0 — 96	8 4 0 — 2112	9 19 72	1 : 22.00
21	Holland	1 : 4.33	0 10 92	8	0 12 0 — 192	1 9 8 — 408	1 18 82	1 : 2.12
22	Golden	Not planted.		—				
23	Pied Golden	Not planted.		—				
24	À Feuilles de Haricot.	1 : 33 84	8 7 13	8	0 13 0 — 208	10 8 0 — 2688	12 15 27	1 : 12.92
25	Salmon-coloured Kidney	Not planted.		—				

In the first place, it appears from this table that the rate of increase is in fourteen cases in twenty in favour of Mr. KNIGHT's method; or, in other words, of the plan of allowing every plant so much room to grow in that the functions of its leaves may be performed in the most perfect manner possible. In some instances, this occurs in a most remarkable manner; for instance, while La Divergente, La Dégénérée, and the long red Kidney yielded, in spaces four feet square, as 1 to 122.81; 64.57: and 81.83, the same sorts, in a more crowded cultivation, increased only at the rate of 1 to 28.53, 15.73 and 22.00 respectively. These, as might be expected, are very strong growing spreading sorts, each occupying naturally at least four feet square. Of the six cases that appear against Mr. KNIGHT's experiment, four are so in so small a degree as not to be much deserving consideration; while two others, Numbers 3 and 6, give a result so far at variance both with all the others, and, indeed with probability, that it is impossible not to suspect that the tubers of those kinds, used in Mr. KNIGHT's experiment, had either been injured before planting, or subsequently by an attack from vermin.

But while the rate of increase appears thus favourable to Mr. KNIGHT's plan, the produce per acre is in eighteen cases out of twenty, exactly the reverse; as might indeed have been anticipated. Of the two cases in which the weight per acre is in favour of very wide cultivation, both the plants are very strong growers; one of them, La Dégénérée, is a curious instance of a kind capable of yielding at a rate of increase as high as 1 to 64.57 yet not producing on the whole much more than two tons per acre in close cultivation, while its produce where it had room to grow exceeded eight tons and a half.

We find that in all those instances in which a greater weight is obtained in close, than in wide, cultivation, the difference is uniformly in proportion to the vigour or debility of the variety. In those cases in which the produce is very small in four feet squares,

the leaves occupy but an inconsiderable proportion of such a space; where the produce is greater, but still less than in closer cultivation, it is connected with a more vigorous growth; if the produce is in both cases nearly equal, it takes place among kinds that, although vigorous growers, are less so than many others, and appear to have the power of adapting themselves to circumstances; but that when the produce is *materially* in favour of very wide, instead of closer culture, the varieties are so rank and coarse in their growth as in the latter case to choke each other up.

Hence it is to be inferred that, in eighteen cases in twenty, in the first experiment now detailed, the distance allowed by Mr. KNIGHT for cultivation was too great, and that, if in those cases a greater number of plants had been put in four feet square (the number to be determined by the habits of the variety) the produce per acre would not only have been materially increased but that such a result would have been obtained at a considerable saving of the number and weight of tubers planted. This will appear clear from a little calculation.

No. 7, the early Kidney Potatoe, is so small, that its leaves do not cover two feet square. In a four feet square it yielded at the rate of 3 tons, 19 cwt. per acre. In six inches square it produced 7 tons, 2 cwt. 91lb. But if two plants had been allowed to grow in four feet square instead of one, so as to occupy all the ground, 7 tons, 18 cwt. would have been the produce; this would have been a gain of 15 cwt. 21 lb. upon the acre; add to this the difference between the number of tubers planted in the one case beyond those employed in the other, or 16,332 tubers, which may be estimated at a further weight of 14 cwt. 95 lb., and the gain upon the acre would be about a ton and a half. And if, as is most probable, three plants of so small a topped variety as this would have had abundant room to grow in four square feet, then the planting them at that distance, instead of eight in the same compass, would have made a difference

of at least three tons and a half more; or a clear gain of five tons an acre; or, a produce of 11 tons, 8 cwt. which would be very considerable for so small a kind.

Or, taking an extreme case of produce to which no addition can be expected, the gain will still be found to be most essentially in favour of Mr. KNIGHT's method. La Divergente furnished us with a proof of this. Cultivated in two feet rows, the plants a foot apart, or each having six inches square to grow in, it yielded 19 tons, 19 cwt. 32 lb.; but one tuber, in four feet square, produced at the rate of 21 tons, 13 cwt. 59 lb., making a difference in favour of the latter of 1 ton, 14 cwt. 27 lb.; to which add the saving of 16,332 tubers in planting, or about 10 cwt. 60 lb. and the total gain is 2 tons, 4 cwt. 87 lb.

From the foregoing facts, it seems that the following conclusion (which is quite confirmatory of Mr. KNIGHT's statements) may be safely drawn.

In order to acquire the greatest possible weight of potatoes per acre, it is necessary that large sound heavy tubers should be employed, and that the space allowed for the growth of each plant should be as nearly as possible such as it would naturally occupy, if suffered to spread freely on all sides without interruption; that this space will vary according to the habits of particular varieties, and can only be determined by accurate experiments; that too much and too little room are alike injurious to productiveness; and that finally, it is quite practicable at least to double the crops that are usually obtained.

It cannot be necessary for me, after this statement, to make any remarks upon the methods at present in use, of planting sets or fragments, or the smallest tubers, or even, as sometimes in Ireland, parings of the Potatoe; the evil consequences of such practices cannot but be apparent to every one.

XXV. *Upon the Cultivation of the Carnation. In a Letter to the Secretary. By Mr.* William May, *F. H. S.*

Read April 5, 1831.

Sir,

As it has long been a great object with the cultivators of the Carnation to discover how to overcome the many enemies it is beset and very frequently destroyed by, as regards keeping it through winter free from canker and mildew, and after that, protecting it from the ravages of the wire worm, during its growing and blooming season, I have not only studied most of the Treatises on the subject, but adopted most of the plans I have seen recommended, but I have as often failed. Having at length, after trying various experiments during seven years succeeded in completely overcoming these difficulties, I now submit the following account of my practice to the consideration of the Society.

In the first place, beginning with the layers when first taken off the parent plant in September, I immediately pot them, a pair in each pot, small size, say forty-eights, which are sufficiently large; previous to which I have as much soil prepared, as I may consider necessary, composed of one half old leaf soil, the other half, coarse pit sand approaching to grit. Before placing them in the pots, I put a handful of potsherds broken small into each, then fill the pot with the above soil, so that it will admit the root of the layer or plant within the rim of the pot, after which I place two layers in each pot close to the side, and fill up with the same sort of soil, after which I give a sufficient watering and place them, exposed to the mid-day sun, in a frame which is filled with old tan, so that it will just admit the pot and the plant to stand on the surface and not touch the glass; I then shut them close down and shade them for a few days, until recovered, after which, air may be given daily by degrees;

in dry warm weather, the lights may be taken entirely off, taking care to close them before the dew falls in the evening, and at all times observing to keep the plants from excess of wet, which produces many infant diseases, mildew, canker, &c. which never leave the plant, and frequently destroy it. This treatment may be followed up until November, and frequently December, giving a little water to those pots which may appear dry; when severe weather sets in, such as continued frost and snow, keep the lights completely closed, in which state I have had them this season eight weeks, the lights covered with snow; when the weather changes and the days lengthen, I have recourse to the same method of airing, &c. as before, until the latter end of March, when for a few days before final removing, I give them full air night and day.

I then have them potted, a single plant in a No. 30 sized pot, for blooming, for which purpose I have a compost preparing through the winter, composed of three-fifths decomposed leaf soil, one-fifth coarse pit sand or grit, one-fifth road-scraping from a limestone made road, or the subsoil or paring next the stone used for lime; these I cause to be frequently turned, exposed and mixed well together, and as the quantity wanted for even a large stock of Carnations is easily looked over and picked by hand, any thing that may have collected in it during the preparing season, such as worms, wire-worms, &c. is taken out. This done I have the pots prepared as in storing, that is *well-drained,* which is very essential; say one-sixth part of the pot filled with well broken potsherds, then a little of the coarsest soil upon them, when the plants may be turned out of their store pots and placed, a single plant in each pot, the old ball of earth being reduced a little, so that the roots of the plant when finally placed may just be within the rim of the pot, not deeper; the pots are then to be filled with the compost prepared, and plunged in the ground where intended to bloom, the rim being just covered with soil.

Before each pot is plunged I have a small quantity of soot put into the bottom of the place intended for it, so that the bottom of the pot may touch it when finally placed; this I find of the greatest moment, as it prevents the entry of worms, grubs, and wire-worms, all of which appear to have an objection to remain near where it is, and thus keeps the roots from being disturbed or destroyed, and the plants in perfect health all through the summer, which cannot be done by any other method that I have tried or seen. Some gardeners grow the Carnations in large pots placed on the surface, others, in the ground openly; by the former method the plants are frequently either too moist or too dry, and by the latter, are subject to the wire-worm, grub, &c. and in summers like the last, are destroyed by too much wet.

In the season of layering, I place an inch thick of fine sandy soil round each pot, in which they readily strike root.

Never having heard of this, or a similar method, believing the plan to be originally mine, and having proved its success to my satisfaction, I am induced to make this report, which I trust will prove to the gratification of those, who like myself have found great difficulty in preserving and growing the Carnation and Piccotee even moderately.

I am, Sir, your's obediently,

WILLIAM MAY.

Pickhill and Hope Nursery,
Leamington, Feb. 20, 1831.

XXVI. *An Account of a new kind of Protecting Frame to be used in forcing Asparagus, Sea Kail, &c. in the open ground. In a Letter to the Assistant Secretary. By Mr.* John Dick, *C. M. H. S.*

Read November 2, 1830.

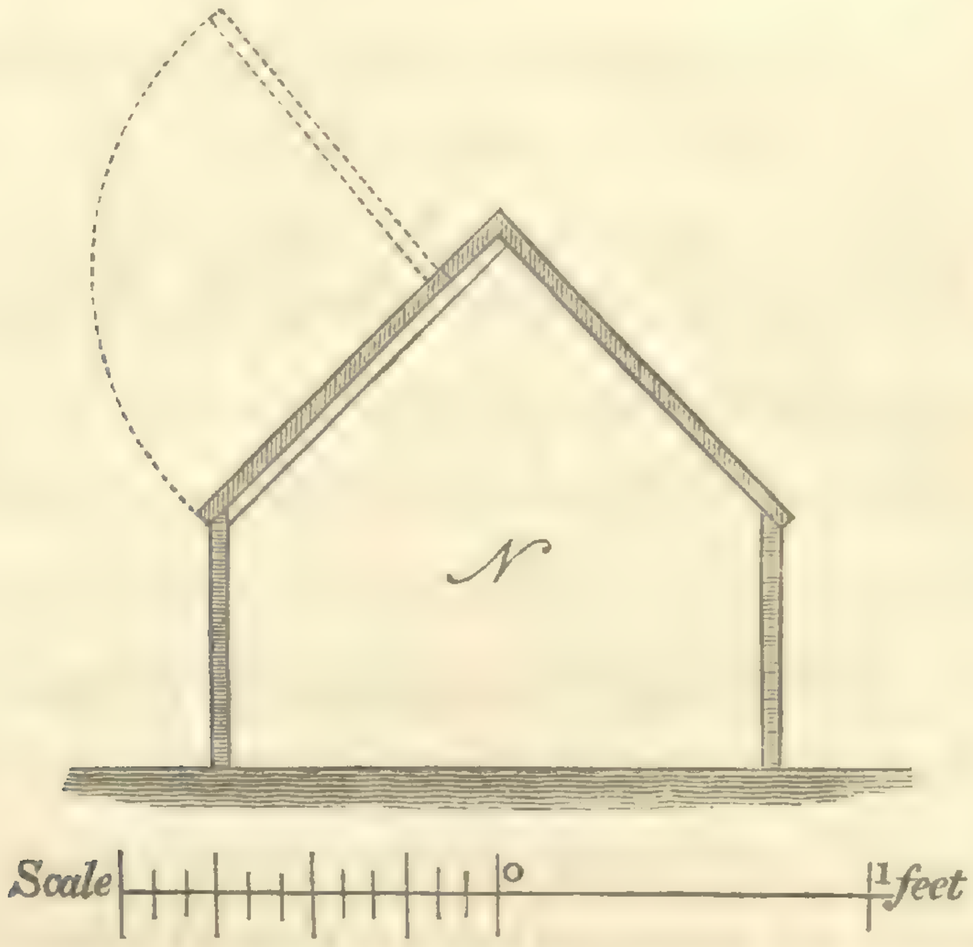
Sir,

I take the liberty of submitting to the Horticultural Society of London the accompanying Plans of economical Forcing Frames, which appear to me to be better adapted to the purpose than any with which I am acquainted.

As they will best be understood from a short description, I will first explain their construction, and then state my mode of using them.

Figure 1. is a plan of a frame intended for forcing Seakail, Rhubarb, or any plants grown in rows in the open garden.

Fig. 1.



A B C D is a front elevation of the frame as it stands on the ground before it is covered with hot dung; *E E* rafters on which the shutters *G* fall; *f. f.* hinges of the shutters, which may be of metal or leather, or even linen; *G G* shutters which are to be lifted up for the purpose of examining when the Seakail is ready for being cut; *H H* holes six inches square cut in the rafters, and having square boxes adapted to them, of which the two at the ends are for the purpose of occasional ventilation, and that in the middle for the examination of a thermometer that is fixed inside the frame. This thermometer should have a scale made of brass, for in such situations, wooden scales soon become obliterated.

I K L M mark the ground plan, and *N* the section of this frame.

This kind of frame, if judiciously managed, will be found much superior to the earthenware covers that are commonly used, and also more economical; for neither is it subject to the expence of breakage, nor does it consume more than one half the quantity of dung.

When to be used, the frame is placed over a row of Seakail, and sunk almost two inches in the soil, so as to keep out mice and snails. It is then covered all over with about six inches of warm dung, or rather more at the sides of the frame. The plants will soon be stimulated into growth by the gentle warmth thus communicated; they can be watched by means of the shutters *G G*; the temper-

ature of the frame can be ascertained by inserting the thermometer in the middle box *H;* ventilation can be effected by the end boxes, *H H;* warmth can be renewed or increased, if necessary, by the exchange of a little of the dung, when cooling, for some fresh; the frame keeps the border in which the plants are growing dry, and prevents its being chilled by being soaked with rain; all of which are important advantages that do not attend the use of earthen covers.

When the forcing begins, the thermometer should be kept about 60°, afterwards it may gradually advance to 65° or 70°, regulating it according to the objects the Gardener may happen to have in view.

It is better that frames of this kind should not be too large; I prefer them only twelve feet long, as they are easily lifted about without the joints being broken bytwisting. The wood of which they are constructed ought not to be less than five-eights or three-fourths of an inch thick.

Fig. 2. is a plan of the same frame adapted to forcing Asparagus in beds, and the description of Fig. 1. applies equally to it.

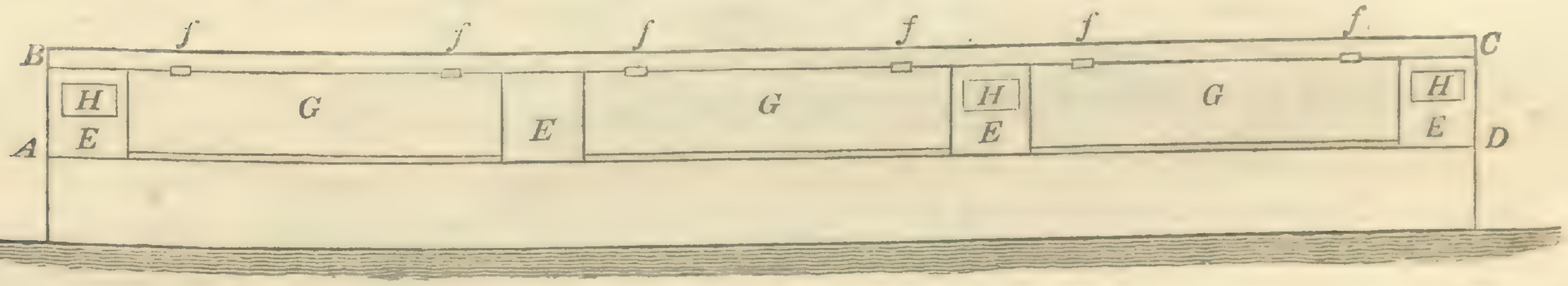
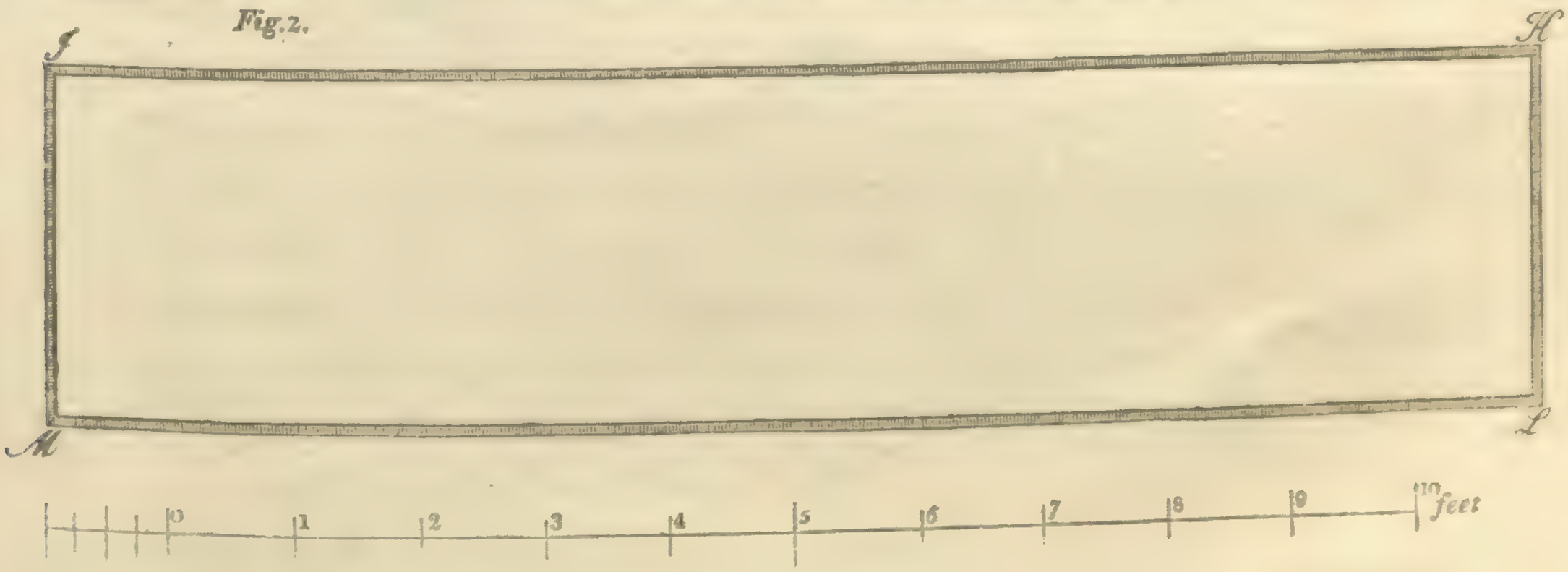
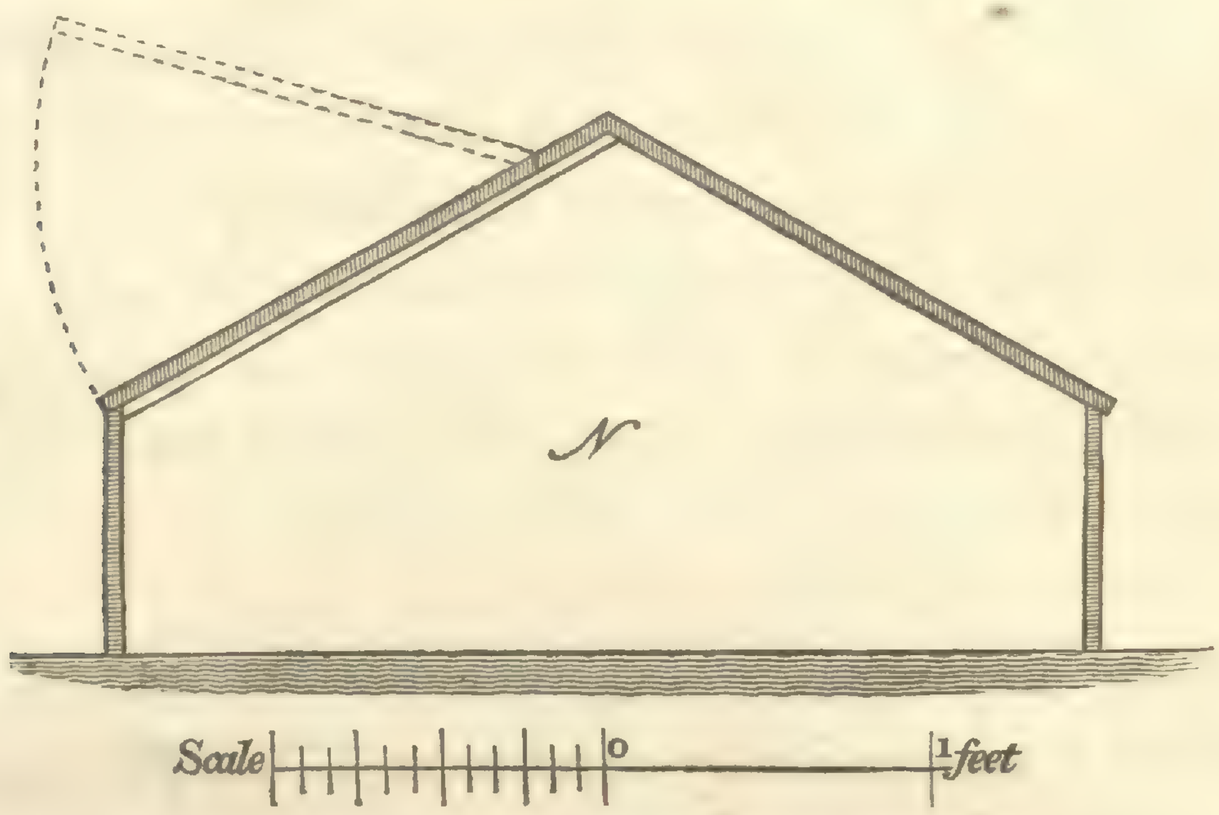


Fig. 2.





It principally differs in being wider and deeper. If the Asparagus is grown in rows instead of beds, then the frame last described will do equally well. The frame, when used, is to be placed over the Asparagus bed, its edge being sunk three or four inches below the surface of the soil, which is to slope gradually outwards so that the dung lining may be applied directly below the edge of the frame, which is then covered with hot dung, but in greater abundance than in the case of Seakail, because there is more earth to heat. The management of the forcing differs only in taking care that the heat is not strong for some time after the frame is placed.

The heads which first appear will be small and weak, as is always the case, but they will be gradually succeeded by stronger. The cutting should not be prolonged too much; a fortnight or a little more is as much as is expedient. In the end the bed is to be gradually cooled, and the frame being removed, it will cease to produce Asparagus till the natural period of its growth arrives, when it will revive, and may be again cut if required. This is, however, not advisable, as the summer unimpeded growth of the Asparagus will nearly restore the bed to its former vigour before the succeeding winter. It is better, however, not to force a bed oftener than every two years.

I am, Sir, Your obedient servant,

JOHN DICK.

Ballindean, Oct. 1830.

The Cannon Hall Muscat Grape.

XXVII. *Note upon the Cannon Hall Muscat Grape. By* John Lindley, *Esq. F. R. S. Assistant Secretary.*

Read January 17th, 1832.

A beautiful specimen of a delicious Grape resembling the Muscat of Alexandria having been sent to the Society, in the interval between two of the Meetings in August last, by Mr. Robert Buck, of Blackheath, a drawing was made of it for the purpose of being communicated to the Society, with such information as could be procured respecting it.

From notes communicated to me by Mr. Buck, and from personal inspection, I am now enabled to give the following particulars.

The actual origin of the variety is uncertain; it became first known to Mr. Buck while in the service of Lord Bagot, at Blithfield Hall, in consequence of a plant having been presented to his Lordship by Charles Spencer Stanhope, Esq. of Cannon Hall, in Yorkshire, as one of the finest and largest Grapes in England—a character which it has been found by experience to deserve. In general appearance it is similar to the Muscat of Alexandria, from which it may be distinguished by its wood being rather stronger, by its leaves being much larger, and their petioles thicker in a remarkable degree; its bunch also sets thinner and in a more regular manner; its berries are perceptibly longer, their flesh is less firm, although equally rich, and finally, it ripens by the side of the Muscat of Alexandria full a fortnight earlier.

In cultivating it Mr. Buck, who grows it in a succession Pine stove, keeps the temperature as low as his Pines will bear in winter, till about the middle or end of February, when he gradually

increases the warmth so that it shall arrive at about Pine Apple heat by the time the berries are swelling; this he does in order to extend the pedicels as much as possible; for one of the peculiarities of the variety is, that although the berries in setting are so far apart that it would seem as if the bunch would be very imperfect when ripe, yet they finally become so large that a subsequent thinning is absolutely necessary.

The following is a description of the specimen sent to the Society by Mr. Buck.

The leaves are of deep rich bright green, and smooth, coarsely, sharply and deeply cut at the margin, with very obscure lobes; at the base the leaves are by no means cordate, but the sides spread at nearly right angles from the petiole, which is remarkably thick.

The bunch is about six inches long and fully as broad across the shoulders. Its stalk is of a deep purplish green. The berries hang loosely; before ripening are of a rich yellowish green, but afterwards become of a bright pale amber colour, oval, and about twelve lines long by nine and a half or ten across. The skin is tough; the flesh solid, juicy, sweet, and extremely high flavoured.

Mr. Buck is of opinion that it would hang a long time on the vine after ripening; as indeed seems probable from the general character of the fruit.

The accompanying Plate is from a drawing by Mrs. Withers.

List of PERSONS *to whom the* LARGE SILVER MEDAL *has been presented by* ORDER *of the* COUNCIL *of the* HORTICULTURAL SOCIETY *of* LONDON, *from May* 1, 1830, *to October* 20, 1831.

To ALEXANDER CRUCKSHANKS, Esq. C. M. H. S. for the numerous and valuable Collections of Seeds and Roots of Ornamental Plants, which he has transmitted to the Society at various times from Chili, particularly Calceolarias and Loasas.

To Mr. JOSEPH WELLS, Gardener to WILLIAM WELLS, Esq. F. H. S. for his exhibition of Dahlias on the 6th of September, 1831.

List of PERSONS *to whom the* BANKSIAN MEDAL *has been presented by* ORDER *of the* COUNCIL *of the* HORTICULTURAL SOCIETY *of* LONDON, *for* EXHIBITIONS *at* GENERAL MEETINGS *of the* SOCIETY, *from May* 1, 1830, *to November* 4, 1831.

To Mr. WILLIAM JARRETT, Gardener to WILLIAM HENRY WHITBREAD, Esq. F. H. S. for a Black Jamaica Pine Apple, exhibited on the 15th of December, 1829.

To the EARL OF AYLESFORD, F. H. S. for Specimens of the Madras Citron, exhibited January 5, 1830.

To Mr. WILLIAM TUSON, for Models of Fruits, exhibited May 4, 1830.

To Mr. BENJAMIN LAW, for forced Cherries, exhibited on the 18th of May, 1830.

To the EARL OF CARNARVON, for Seedling Azaleas, exhibited June 15th, 1830.

To JOHN ALLNUTT, Esq. F. H. S. for Black Hamburgh Grapes, exhibited October 5, 1830.

To the EARL OF CARNARVON, for Azaleas, exhibited June 7th 1831.

To Mr. JAMES YOUNG, F. H. S. for his exhibition of upwards of 400 sorts of Roses, on the 21st of June, 1831.

To Mr. Joseph Myatt, for a New Seedling Strawberry, exhibited July 5, 1831.

To Mr. William Lindsay, Gardener to His Grace The Duke of Devonshire, for Peaches and Nectarines, exhibited July 19, 1831.

To Mr. C. Brown, F. H. S. for a collection of Dahlias, exhibited September 6, 1831.

To Mr. Joseph Wells, Gardener to John Wells Esq. F. H. S. for a collection of Dahlias, exhibited September 6th 1831.

To Edmund Tattersall, Esq. F. H. S. for Grapes, exhibited September 20, 1831.

To John Allnutt, Esq. F. H. S. for Grapes, exhibited September 20, 1831.

To Mr. Hugh Frazer, Gardener to Sir C. Sullivan, Bart. F. H. S. for a collection of Fruit, and particularly for a very fine specimen of the Gerger Melon, exhibited September 6, 1831.

To Mr. James Veitch, F. H. S. for Dahlias, exhibited October 18, 1831.

Erratum. The Plate of the Early Purple Guigne Cherry (Plate 4,) having been prepared some time before the letter-press was finally corrected, was engraved Early Purple Griotte, the name that was originally given to the Variety.

TRANSACTIONS

OF THE

HORTICULTURAL SOCIETY

OF

LONDON.

SECOND SERIES.

ADVERTISEMENT.

The Committee appointed by the Horticultural Society to direct the publication of the Papers read before them, take this opportunity to inform the Public, that the grounds of the choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them, without pretending to answer for the certainty of the facts, or the propriety of the reasonings, contained in the several Papers so published; which must still rest on the credit or judgment of their respective Authors.

It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

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7. Mr. Stothert's Methods of Heating by Steam - 197

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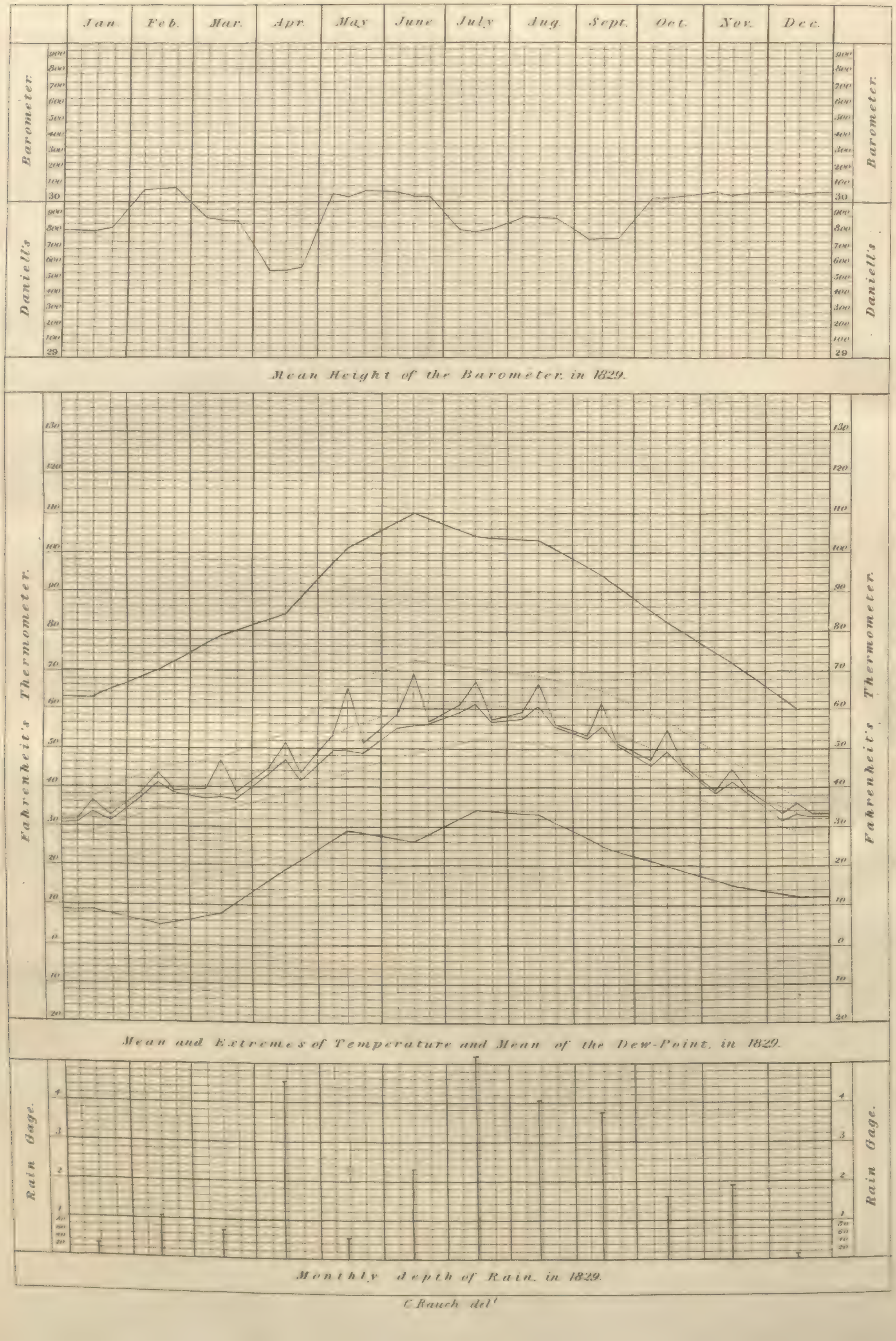
ERRATA.

p. 200, line 3 from the bottom, *for* eight feet, *read* eight inches.

p. 211, line 19, *for* three square feet, *read* three feet square.


Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Barometer.
Daniell's
900
800
700
600
500
400
300
200
100
30
29
Mean Height of the Barometer, in 1829.
Fahrenheit's Thermometer.
130
120
110
100
90
80
70
60
50
40
30
20
10
0
10
20
Mean and Extremes of Temperature and Mean of the Dew-Point, in 1829.
Rain Gage.
4
3
2
1
Monthly depth of Rain, in 1829.

C Rauch del.

XXVIII. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year 1829.* *By Mr.* William Beattie Booth, *A. L. S.*

The Instruments are the same as those employed for the observations of the preceding Journals, and the same plan of conducting the observations has also been pursued.

JANUARY.

	1829.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
	Th.	1	29.890	44	42	2	Fine	29.854	47	41	6	Fine	29.858	41	39	2	Clear & Fine
	F.	2	—.888	37	34	3	Clear & Fine	—.949	45	40	5	Clear & Fine	30.016	35	33	2	Ditto
	S.	3	—.966	35	35	—	Drizzly	—.944	41	39	2	Ditto	—.028	39	39	—	Stormy
	S.	4	—.591	42	42	—	Stormy	—.511	44	41	3	Stormy	29.574	38	36	2	Ditto
●	M.	5	—.762	35	32	3	Clear & Cold	—.808	39	36	3	Clear & Fine	—.938	32	30	2	Clear & Cold
	T.	6	30.049	29	27	2	Ditto	30.020	35	33	2	Overcast	30.024	33	32	1	Ditto
	W	7	—.071	35	34	1	Ditto	—.015	37	32	5	Clear & Cold	—.001	34	33	1	Ditto
	Th.	8	29.935	32	32	—	Sleet, Drizzly	29.919	36	36	—	Overcast	29.911	33	33	—	Sleety, Drizzly
	F.	9	—.855	33	33	—	Overcast	—.815	36	34	2	Cloudy & Dull	—.674	35	35	—	Overcast
	S.	10	—.678	36	34	2	Clear & Fair	—.693	37	35	2	Ditto	—.747	35	35	—	Cloudy
	S.	11	—.900	32	31	1	Stormy	—.929	32	30	2	Cold & Stormy	30.018	33	32	1	Ditto
D	M.	12	30.038	36	34	2	Ditto	30.026	36	33	3	Ditto	—.069	35	35	—	Ditto
	T.	13	—.113	35	35	—	Cloudy & Dull	—.151	36	33	3	Ditto	—.153	33	32	1	Clear
	W.	14	—.112	34	33	1	Ditto	—.089	37	35	2	Fine	—.062	36	35	1	Cloudy
	Th.	15	29.989	35	34	1	Ditto	29.890	37	36	1	Cloudy	29.779	35	33	2	Clear & Cold
	F.	16	—.690	32	30	2	Clear & Cold	—.658	30	27	3	Ditto & Cold	—.687	28	27	1	Cloudy
	S.	17	—.859	29	27	2	Cloudy & Cold	—.863	32	25	7	Ditto	—.929	27	26	1	Clear & Cold
	S.	18	30.012	24	23	1	Clear & Cold	30.028	32	31	1	Clear & Cold	30.103	30	30	—	Overcast
	M.	19	—.201	27	26	1	Ditto	—.141	35	32	3	Ditto	—.127	22	22	—	Clear & Cold
○	T.	20	—.114	25	25	—	Ditto	—.041	31	31	—	Ditto	—.014	28	28	—	Ditto
	W.	21	29.976	28	27	1	Ditto	29.897	28	28	—	Do.some Snow	29.879	28	26	2	Ditto
	Th.	22	—.748	26	24	2	Ditto	—.709	30	24	6	Cold & Stormy	—.695	25	23	2	Ditto
	F.	23	—.629	24	21	3	Cold & Stormy	—.589	22	18	4	Ditto	—.605	21	19	2	Ditto
	S.	24	—.613	21	19	2	Ditto	—.633	28	25	3	Ditto	—.662	26	25	1	Ditto
	S.	25	—.702	22	21	1	Clear & Cold	—.682	26	24	2	Clear & Cold	—.534	27	27	—	Overcast
	M.	26	—.088	34	34	—	Drizzly	—.144	46	44	2	Fine	—.158	40	40	—	Drizzly
	T.	27	—.170	38	37	1	Fine	—.180	45	45	—	Drizzly	—.221	40	39	1	Fine
◐	W.	28	—.443	33	32	1	Clear & Fine	—.562	43	40	3	Fine	—.625	37	37	—	Overcast
	Th.	29	—.606	30	30	—	Dense Fog	—.588	38	38	—	Foggy	—.479	34	34	—	Cloudy
	F.	30	—.574	33	32	1	Fine	—.673	40	37	3	Fine	—.870	37	35	2	Ditto
	S.	31	30.187	35	35	—	Ditto	30.223	40	37	3	Ditto	30.405	34	32	2	Fine
			29.821	31.9	30.8	1.1		29.813	36.1	33.5	2.6		29.833	32.6	31.7	.9	

JANUARY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	+49	36	54	30	NW	Brisk			This month was, for the most part, cold and frosty with some heavy gales of wind. Those on the nights of the 3rd and 4th were very boisterous. The frost set in with some severity on the 16th and continued until the 26th. There was a slight fall of snow at noon on the 21st. Upon the whole the mean temperature was considerably lower than that of former years.
2	45	30	59	23	——	Ditto			
3	46	35	+63	33	W	Ditto	.21		
4	46	33	47	23	NW	Ditto	.02		
5	39	28	54	21	N	Ditto			
6	35	30	53	26	——	Ditto			
7	38	31	45	25	——	Ditto			
8	36	31	36	25	——	Ditto	.03		
9	38	32	40	29	NE	Little			Mean Pressure from the 3 daily observations 29.822 inches.
10	39	29	49	23	——	Ditto			—— Temperature ..... Ditto ..... 33°.5
11	35	33	35	29	E	Strong			—— Dew Point ..... Ditto ..... 32°.
12	37	33	37	31	——	Ditto			—— Degree of Dryness ... Ditto ..... 1°.5
13	37	31	40	25	——	Ditto			—— Degree of Moisture .. Ditto 964
14	37	32	40	30	NE	Brisk			—— Force of Vapour .... Ditto ..... 0.216 inch.
15	37	29	37	25	——	Little			Least observed degree of Moisture 787
16	32	26	32	24	——	Ditto			Maximum Temperature in the Shade .... 49°
17	32	20	37	13	E	Ditto			Minimum Temperature in ditto ..... 17°
18	32	22	39	13	SE	Ditto			Maximum Temperature in the Sun ..... 63°
19	39	—17	61	— 9	E	Brisk			Minimum of Terrestrial Radiation ..... 9°
20	34	24	42	22	——	Ditto			Mean Temperature of external Air ..... 32°.8
21	29	22	32	16	——	Ditto			
22	31	23	42	19	NE	Stormy			WINDS.
23	29	19	29	12	——	Ditto			North.....4 days. | N. East.....11 days.
24	29	20	30	16	——	Brisk			East.....8 .. | S. East .....2 ..
25	27	24	47	19	E	Ditto			South.....1 .. | N. West.....3 ..
26	49	36	55	31	SE	Little	.04		West .....1 .. | S. West.....1 ..
27	45	32	50	26	S	Brisk			31 days.
28	43	27	55	18	SW	Little			
29	38	30	40	25	NE	Ditto			
30	42	34	59	31	——	Ditto			Amount of Rain..... 0.30 inches.
31	40	23	43	16	——	Ditto			
	37.5	28.1	43.5	22.8			0.30		

FEBRUARY.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	30.467	29	28	1	Clear and Fine	30.479	34	33	1	Clear and Fine	30.568	24	24	—	Slight Fog
M.	2	—.608	20	18	2	Ditto	—.606	32	27	5	Very Fine	—.615	23	23	—	Ditto
T.	3	—.665	21	19	2	Ditto	—.655	36	30	6	Ditto	—.608	25	25	—	Cold & Ditto
● W.	4	—.480	33	33	—	Drizzly	—.401	37	37	—	Wet	—.263	39	39	—	Drizzly
Th.	5	—.203	43	43	—	Overcast	—.223	45	44	1	Cloudy	—.275	39	38	1	Cloudy
F.	6	—.378	37	37	—	Drizzly	—.375	42	42	—	Drizzly	—.275	42	42	—	Drizzly
S.	7	—.198	44	44	—	Cloudy	—.186	47	46	1	Dull & Cloudy	—.156	45	45	—	Ditto
S.	8	—.247	42	42	—	Drizzly	—.374	40	40	—	Drizzly	—.348	36	36	—	Ditto
M.	9	—.358	37	37	—	Cloudy	—.328	44	42	2	Cloudy	—.354	42	42	—	Cloudy
☽ T.	10	—.471	38	36	2	Clear	—.475	42	37	5	Fine	—.465	39	39	—	Drizzly
W.	11	—.271	41	41	—	Drizzly	—.289	45	42	3	Cloudy	—.342	44	44	—	Cloudy
Th.	12	—.202	43	43	—	Cloudy	—.192	47	44	3	Ditto	—.208	46	46	—	Ditto
F.	13	—.186	45	45	—	Drizzly	—.194	48	44	4	Fine	—.188	43	41	2	Fine
S.	14	—.194	45	42	3	Fine	—.176	50	37	13	Very Fine	—.178	45	45	—	Overcast
S.	15	—.120	44	43	1	Cloudy	—.103	51	49	2	Showery	—.087	46	46	—	Showery
M.	16	—.052	47	45	2	Ditto	29.985	51	48	3	Fine	29.875	43	42	1	Fine
T.	17	29.906	44	43	1	Fine	—.886	50	47	3	Ditto	—.894	43	41	2	Ditto
○ W.	18	—.913	37	35	2	Clear & Cold	—.905	40	35	5	Clear & Cold	—.816	37	36	1	Ditto
Th.	19	—.780	40	37	3	Fine	—.615	50	45	5	Very Fine	—.608	38	38	—	Ditto
F.	20	—.666	45	44	1	Cloudy	—.662	51	47	4	Showery	—.683	45	45	—	Showery
S.	21	—.248	43	43	—	Showery	—.248	52	52	—	Ditto	—.102	47	47	—	Ditto
S.	22	—.221	42	42	—	Overcast	—.337	45	43	2	Ditto	—.390	41	41	—	Overcast
M.	23	—.569	37	31	6	Clear and Cold	—.567	41	32	9	Fine	—.534	32	29	3	Clear & Cold
T.	24	—.479	35	33	2	Ditto	—.481	40	38	2	Hazy and Cold	—.590	37	35	2	Ditto
W.	25	—.974	40	39	1	Cloudy & Cold	30.026	42	42	—	Drizzly	30.138	37	35	2	Ditto
☾ Th.	26	30.140	40	40	—	Drizzly	—.017	42	42	—	Rainy	—.015	40	40	—	Rainy
F.	27	—.126	42	42	—	Ditto	—.269	43	43	—	Drizzly	—.362	37	36	1	Clear
S.	28	—.419	34	30	4	Clear and Fine	—.386	40	25	15	Very Fine	—.344	28	28	—	Clear and Cold
		30.090	38.8	37.7	1.1		30.087	43.8	40.5	3.3		30.081	38.6	38.1	.5	

FEBRUARY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	38	—15	55	5	NE	Little		The first three days of this month were clear and frosty accompanied with slight fogs at night. In general, however, the weather has been cloudy and unsteady, yet mild for the period of the year, and the Mean Temperature was somewhat above that of the Average Mean; but in consequence of the want of sunshine, vegetation made but very little progress. On the morning of the 3d the Barometer attained a greater height than has yet been registered at the garden.
2	38	17	59	7	SE	Ditto		
3	39	24	61	15	SW	Ditto		
4	40	38	44	36	——	Ditto	.18	
5	45	34	45	32	NW	Ditto		
6	44	39	44	37	W	Brisk	.02	
7	47	38	48	34	NW	Ditto	.05	
8	42	31	42	23	S	Little	.01	
9	45	35	48	31	SW	Ditto		
10	45	38	52	35	W	Ditto	.04	
11	46	40	51	39	——	Brisk		
12	48	42	50	39	NW	Ditto		
13	48	40	51	37	——	Little	.03	
14	50	41	61	39	W	Ditto		
15	51	42	55	40	——	Brisk	.01	
16	52	40	+70	31	NW	Little		
17	50	35	69	30	SE	Ditto		
18	40	34	55	31	E	Brisk		
19	52	34	66	28	SE	Little		
20	+52	40	65	33	SW	Ditto	.21	
21	52	38	57	30	SE	Brisk	.05	
22	46	35	46	31	N	Ditto		
23	42	31	60	25	E	Ditto		
24	40	33	41	26	——	Little		
25	42	35	46	33	——	Brisk	.03	
26	42	38	42	37	——	Ditto	.38	
27	44	31	45	24	NE	Ditto	.06	
28	43	24	62	13	E	Ditto		
	45.1	34.3	53.2	29.3			1.07	

Mean Pressure from the 3 daily observations 30.086 inches.
—— Temperature ..... Ditto ..... 40°.4
—— Dew Point ..... Ditto ..... 38°.8
—— Degree of Dryness .... Ditto ..... 1°.6
—— Degree of Moisture .. Ditto 943
—— Force of Vapour .... Ditto ..... 0.264 inch.
Least observed degree of Moisture 607
Maximum Temperature in Shade ..... 52°
Minimum Temperature in ditto ..... 15°
Maximum Temperature in the Sun ..... 70°
Minimum of Terrestrial Radiation..... 5°
Mean Temperature of External air ..... 39°.7

WINDS.

North.....	1 days.	N. East.....	2 days
East.....	6 ..	S. East.....	4 ..
South.....	1 ..	N. West.....	5 ..
West	5 ..	S. West.....	4 ..

28 days.

Amount of Rain ..... 1.07 inch.

MARCH.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Baro m.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	30.264	30	28	2	Clear & Cold	30.225	35	32	3	Clear & Cold	30.173	33	32	1	Clear & Cold
M.	2	—.203	34	33	1	Ditto	—.361	36	34	2	Cloudy & Cold	—.326	35	34	1	Cloudy & Cold
Tu.	3	—.403	35	32	3	Cloudy & Cold	—.389	41	37	4	Ditto	—.353	37	35	2	Ditto
W.	4	—.250	40	40	—	Overcast	—.184	42	40	2	Stormy	—.190	35	33	2	Clear & Cold
● Th.	5	—.249	36	32	4	Clear & Cold	—.218	45	35	10	Fine	—.168	40	40	—	Cloudy
F.	6	—.132	41	39	2	Fine	—.062	45	37	8	Ditto	—.044	40	39	1	Fine
S.	7	—.026	42	41	1	Cloudy	—.020	47	35	12	Ditto	—.014	41	41	—	Overcast
S.	8	—.009	43	43	—	Ditto	—.003	47	44	3	Cloudy	29.999	42	42	—	Ditto
M.	9	29.939	41	41	—	Overcast	29.875	51	41	10	Ditto	—.872	37	36	1	Fine
T.	10	—.898	40	38	2	Very Fine	—.900	47	35	12	Very Fine	—.894	38	38	—	Slight Fog
W.	11	—.882	35	35	—	Foggy	—.834	43	34	9	Cold & Cloudy	—.869	32	31	1	Fine
☽ Th.	12	—.818	37	35	2	Cloudy & Cold	—.775	42	30	12	Fine	—.708	35	33	2	Ditto
F.	13	—.695	39	36	3	Ditto	—.745	41	28	13	Cloudy & Cold	—.867	38	34	4	Ditto
S.	14	—.935	37	30	7	Fine	—.916	42	25	17	Ditto	—.968	30	26	4	Ditto
S.	15	—.976	34	28	6	Ditto	—.950	41	29	12	Fine	—.929	30	25	5	Ditto
M.	16	—.839	29	25	4	Clear & Cold	—.742	42	30	12	Clear & Cold	—.616	29	27	2	Clear & Cold
T.	17	—.550	30	25	5	Ditto	—.533	47	32	15	Very Fine	—.642	35	35	—	Fine
W.	18	—.733	37	37	—	Fine	—.761	50	45	5	Ditto	—.733	48	47	1	Ditto
Th.	19	—.690	52	48	4	Ditto	—.612	53	46	7	Ditto	—.553	46	42	4	Ditto
○ F.	20	—.666	50	49	1	Cloudy	—.814	58	50	8	Ditto	—.985	48	46	2	Ditto
S.	21	30.133	49	47	2	Fine	30.101	58	52	6	Fine	—.992	42	40	2	Ditto
S.	22	29.912	47	42	5	Ditto	29.829	56	46	10	Ditto	—.803	43	42	1	Overcast
M.	23	—.836	43	41	2	Ditto	—.902	51	42	9	Ditto	—.965	42	40	2	Fine
T.	24	—.939	37	33	4	Ditto	—.913	46	31	15	Very Fine	—.955	30	27	3	Clear & Cold
W.	25	—.971	32	29	3	Ditto	—.959	45	30	15	Ditto	—.991	33	32	1	Ditto
Th.	26	30.016	38	36	2	Ditto	30.007	49	35	14	Cloudy	30.028	41	39	2	Overcast
F.	27	29.989	43	40	3	Ditto	29.916	49	38	11	Very Fine	29.860	37	36	1	Clear & Cold
☾ S.	28	—.698	38	37	1	Ditto	—.654	54	32	22	Ditto	—.462	42	40	2	Overcast
S.	29	—.345	46	46	—	Wet	—.331	47	47	—	Cloudy	—.333	46	46	—	Ditto
M.	30	—.276	43	43	—	Overcast	—.268	48	44	4	Ditto	—.250	43	43	—	Ditto
T.	31	—.266	41	41	—	Drizzly	—.380	43	40	3	Ditto	—.367	37	36	1	Ditto
		29.888	39.32	37.09	2.22		29.876	46.48	37.29	9.19		29.867	38.22	36.67	1.54	

MARCH.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	36	30	46	20	E	Brisk		The weather during the greater part of this month was dry and cold but very favourable for the operations of the garden. On the 8th a heavy shower of sleet fell in the afternoon. The amount of rain was much below the average mean for the month, none having fallen of any consequence until the night of the 28th. The winds were principally from the E. and NE. On the night of the 20th it blew a strong gale from the SW. The frost was severe during the nights of the 14th, 15th, 16th, and 24th.
2	36	32	37	31	——	Ditto		
3	41	34	44	31	——	Ditto		
4	44	31	62	25	NE	Ditto		
5	45	35	65	33	E	Ditto		
6	46	37	51	32	——	Ditto		
7	47	39	55	35	NE	Little		
8	47	38	52	33	——	Ditto	.02	
9	51	35	59	27	NW	Ditto		
10	48	30	76	27	NE	Brisk		
11	44	30	60	22	SE	Ditto		
12	43	34	60	30	E	Ditto		
13	43	32	50	28	NE	Ditto		
14	42	—21	59	9	E	Little		
15	42	22	67	—8	NE	Brisk		
16	45	25	70	18	E	Ditto		
17	50	28	73	20	SW	Ditto		
18	56	41	76	36	——	Ditto		
19	57	40	76	35	W	Little		
20	+60	42	+79	36	SW	Brisk		
21	58	35	79	29	SE	Little		
22	56	42	75	36	——	Brisk		
23	52	36	70	32	E	Ditto		
24	46	22	64	11	——	Ditto		
25	49	26	74	15	——	Ditto		
26	49	37	60	32	——	Ditto		
27	51	30	73	21	——	Ditto		
28	55	39	75	38	NE	Little	.68	
29	47	39	49	35	N	Ditto		
30	48	38	51	35	——	Ditto		
31	43	33	49	26	NE	Ditto	.05	
	47.64	33.32	62.45	27.29			0.75	

Mean Pressure from the 3 daily observations 29.877 inches.
—— Temperature ..... Ditto ..... 41°.34
—— Dew Point ..... Ditto ..... 37°.01
—— Degree of Dryness ... Ditto ..... 4°.33
—— Degree of Moisture .. Ditto 876
—— Force of Vapour ..... Ditto ..... 0.256 inch.
Least observed degree of Moisture 469
Maximum Temperature in the Shade .... 60°
Minimum Temperature in ditto ..... 21°
Maximum Temperature in the Sun ..... 79°
Minimum Temp. of Terrestrial Radiation 8°
Mean Temperature of External Air ..... 40°.48

WINDS.

North	2 days.	N. East	8 days.
East	13 ..	S. East	3 ..
South	0 ..	N. West	1 ..
West	1 ..	S. West	3 ..

31 days.

Amount of Rain..... 0.75 inch.

APRIL.

	Morning.						Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	29.367	41	39	2	Clear & Cold	29.482	46	35	11	Fine	29.523	32	32	—	Clear & Cold
Th.	2	—.556	35	35	—	Snowy	—.597	39	39	—	Stormy Sleet	—.667	33	31	2	Ditto
● F.	3	—.733	39	35	4	Clear & Cold	—.755	47	44	3	Do. S[lt] Showers	—.884	36	33	3	Ditto
S.	4	—.731	44	43	1	Fine	—.659	55	43	12	Cloudy	—.511	45	45	—	Wet
S.	5	—.392	51	49	2	Ditto	—.336	56	52	4	Showery	—.246	50	50	—	Showery
M.	6	—.212	47	46	1	Showery	—.264	55	48	7	Ditto	—.307	45	45	—	Overcast
T.	7	—.200	43	43	—	Ditto	—.228	51	49	2	Ditto	—.369	41	40	1	Clear & Fine
W.	8	—.435	41	41	—	Ditto	—.450	49	49	—	Wet	—.420	42	42	—	Overcast
Th.	9	—.248	42	42	—	Heavy Rain	— 230	46	46	—	Ditto	—.369	43	43	—	Ditto
F.	10	—.464	47	46	1	Fine	—.491	51	48	3	Showery	—.612	42	40	2	Fine
☽ S.	11	—.648	45	42	3	Ditto	—.607	57	50	7	Fine	—.445	46	46	—	Wet
S.	12	—.253	47	47	—	Do. wth Showers	—.247	59	55	4	Showery	—.139	51	51	—	Stormy
M.	13	—.157	52	52	—	Fine	—.205	54	54	—	Ditto	—.183	45	45	—	Fine
T.	14	—.320	48	48	—	Ditto	—.200	60	55	5	Overcast, Rain	28.978	52	52	—	Showery
W.	15	—.178	53	53	—	Do. wth Showers	—.240	55	47	8	Stormy	29.332	46	43	3	Fine
Th.	16	—.278	45	45	—	Heavy Rain	— 297	46	46	—	Heavy Rain	—.440	38	38	—	Do. with Fog
F.	17	—.672	48	46	2	Very Fine	—.729	52	49	3	Fine, Showers	—.806	46	46	—	Fine, Showers
S.	18	—.840	51	50	1	Fine	—.819	56	56	—	Showery	—.814	46	45	1	Fine
⊙ S.	19	—.721	48	44	4	Ditto	—.658	53	47	6	Ditto	—.711	40	37	3	Ditto
M.	20	—.745	45	42	3	Cloudy	—.824	53	46	7	Cloudy w[h] Showers	—.882	42	42	—	Slight Fog
T.	21	—.864	45	45	—	Slight Fog	—.789	58	45	13	Very Fine	—.648	48	44	4	Overcast
W.	22	—.458	45	45	—	Stormy Rain	—.494	47	47	—	Wet	—.604	46	46	—	Drizzly
Th.	23	—.711	43	43	—	Overcast	—.680	60	51	9	Very Fine	—.747	47	47	—	Overcast
F.	24	—.761	49	49	—	Drizzly	—.826	50	47	3	Cloudy	—.876	45	43	2	Ditto
S.	25	—.805	44	44	—	Ditto	—.917	40	40	—	Stormy Rain	30.064	40	37	3	Fine
☾ S.	26	30.158	42	40	2	Fine	30.116	54	37	17	Very Fine	—.050	43	40	3	Ditto
M.	27	29.775	42	42	—	Overcast	29.521	53	53	—	Rainy	29.803	45	39	6	Fair
T.	28	—.715	43	39	4	Stormy	—.626	50	50	—	Stormy Show[rs]	—.621	41	37	4	Stormy
W.	29	—.472	40	32	8	Ditto	—.816	46	39	7	Stormy	—.900	38	34	4	Fine
Th.	30	—.955	44	32	12	Fine	—.910	45	37	8	Cloudy	—.850	44	42	2	Cloudy
		29.560	44.96	43.30	1.66		29.567	51.43	46.80	4.63		29.593	43.26	41.83	1.43	

APRIL.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	50	−29	75	−19	NW	Brisk		
2	48	30	68	20	——	Ditto	.01	
3	50	29	74	19	SW	Ditto		
4	55	42	64	38	S	Ditto	.14	
5	56	42	72	37	SW	Ditto	.08	
6	55	36	70	32	S	Little	.13	
7	58	30	71	22	——	Ditto	.24	
8	51	37	58	33	SW	Brisk	.33	
9	49	38	63	33	——	Ditto	.30	
10	54	34	76	26	——	Ditto	.02	
11	57	45	75	43	——	Ditto	.51	
12	60	47	74	44	S	Ditto	.14	
13	56	40	61	33	——	Little	.12	
14	60	47	71	40	——	Stormy	.31	
15	55	44	64	35	——	Brisk	.04	
16	47	35	53	27	N	Ditto	.63	
17	60	45	82	39	SW	Little	.07	
18	+61	45	+82	35	W	Brisk	.17	
19	54	37	68	30	——	Ditto	.03	
20	56	32	76	25	SW	Ditto	.01	
21	60	45	82	40	E	Little	.05	
22	47	42	48	37	——	Ditto	.22	
23	60	46	72	43	NE	Ditto	.28	
24	50	42	50	41	E	Ditto	.02	
25	44	33	44	27	——	Strong	.47	
26	54	35	73	26	NE	Little		
27	56	39	72	35	N	Brisk	.09	
28	55	36	58	32	NW	Stormy	.07	
29	46	30	50	22	——	Ditto	.01	
30	47	40	53	38	W	Brisk		
	53.70	38.40	66.66	32.36			4.49	

The depth of rain was nearly thrice the average mean of the month, it having rained more or less every day, excepting on the 1st, 26th, and 30th. On the morning of the 2nd the ground was covered with snow, which greatly injured the early crops in the Garden. Some thunder was heard in the afternoon of the 19th. The nights of the 15th and 28th were very boisterous. Upon the whole a more unseasonable month had not been witnessed for many years.

Mean Pressure from the 3 daily observations		29.573 inches.
—— Temperature	Ditto	46°.55
—— Dew Point	Ditto	43°.97
—— Degree of Dryness ...	Ditto	2°.57
—— Degree of Moisture ..	Ditto	897
—— Force of Vapour.	Ditto	0.316 inch.
Least observed degree of Moisture		556
Maximum Temperature in Shade		61°
Minimum Temperature in ditto		29°
Maximum Temperature in the Sun		82°
Minimum of Terrestrial Radiation		19°
Mean Temperature of External Air.....		46°.05

WINDS.

North.....	2 days.	N. East.....	2 days.
East	4 ..	S. East.....	0 ..
South	7 ..	N. West.....	4 ..
West.....	3 ..	S. West.....	8 ..

30 days.

Amount of Rain..... 4.49 inches.

MAY.

	Morning.						Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.684	50	48	2	Fine	29.680	58	52	6	Very Fine	29.710	51	48	3	Fine
S.	2	—.718	54	50	4	Very Fine	—.698	61	50	11	Fine	—.728	50	48	2	Ditto
● S.	3	—.673	55	48	7	Ditto	—.655	61	46	15	Very Fine	—.582	50	49	1	Cloudy
M.	4	—.785	50	45	5	Ditto	—.923	62	40	22	Ditto	30.052	49	45	4	Fine
T.	5	30.044	51	45	6	Ditto	30.035	61	56	5	Cloudy	29.999	55	53	2	Ditto
W.	6	29.948	52	52	—	Drizzly	29.960	65	47	18	Very Fine	30.011	46	45	1	Ditto
Th.	7	30.006	47	45	2	Very Fine	30.004	60	47	13	Fine	—.117	49	46	3	Ditto
F.	8	—.176	52	50	2	Ditto	—.237	60	50	10	Ditto	—.161	54	52	2	Very Fine
S.	9	—.168	55	52	3	Ditto	—.115	63	50	13	Very Fine	—.077	51	49	2	Ditto
☽ S.	10	—.071	54	48	6	Ditto	—.051	70	55	15	Ditto	—.051	53	50	3	Ditto
M.	11	—.049	56	53	3	Ditto	—.007	65	45	20	Ditto	29.990	52	47	5	Ditto
T.	12	29.973	57	52	5	Ditto	29.908	65	55	10	Ditto	—.951	49	47	2	Ditto
W.	13	—.951	55	52	3	Ditto	—.936	67	49	18	Ditto	—.956	51	44	7	Ditto
Th.	14	—.975	51	47	4	Hazy	—.930	71	49	22	Ditto	—.940	57	48	9	Ditto
F.	15	—.987	57	50	7	Very Fine	—.972	70	45	25	Ditto	30.036	54	52	2	Hazy
S.	16	30.076	52	51	1	Overcast	30.079	65	51	14	Ditto	—.123	51	48	3	Fine
S.	17	—.117	55	45	10	Very Fine	—.129	68	45	23	Ditto	—.113	49	44	5	Very Fine
○ M.	18	—.073	53	46	7	Ditto	—.037	66	46	20	Ditto	29.972	50	46	4	Ditto
T.	19	29.906	56	53	3	Ditto	29.899	68	43	25	Ditto	—.905	51	48	3	Ditto
W.	20	—.926	56	52	4	Ditto	—.933	73	50	23	Ditto	—.998	54	50	4	Ditto
Th.	21	30.078	60	54	6	Ditto	30.064	70	48	22	Ditto	30.124	45	44	1	Ditto
F.	22	—.159	50	43	7	Ditto	—.123	69	54	15	Ditto	—.147	53	51	2	Ditto
S.	23	—.193	55	53	2	Ditto	—.154	75	50	25	Ditto	—.190	54	52	2	Ditto
S.	24	—.241	57	54	3	Ditto	—.236	58	58	—	Heavy Rain	—.267	57	56	1	Fine
☾ M.	25	—.399	54	50	4	Cloudy	—.415	58	45	13	Fine	—.441	50	46	4	Ditto
T.	26	—.409	53	49	4	Fine	—.335	66	53	13	Very Fine	—.439	50	48	2	Ditto
W.	27	—.298	54	48	6	Very Fine	—.246	67	45	22	Ditto	—.251	54	45	9	Very Fine
Th.	28	—.229	55	51	4	Ditto	—.157	70	49	21	Ditto	—.178	50	47	3	Ditto
F.	29	—.195	52	50	2	Cloudy	—.192	66	57	9	Cloudy	—.207	51	49	2	Ditto
S.	30	—.200	51	48	3	Ditto	—.161	59	52	7	Ditto	—.189	50	46	4	Ditto
S.	31	—.195	53	48	5	Fine	—.178	66	46	20	Very Fine	—.170	56	53	3	Ditto
		30.061	53.61	49.42	4.19		30.046	65.25	49.29	15.96		30.066	51.48	48.25	3.22	

MAY.

Days.	Temperature. Max.	Min.	Sun.	Rad.	Wind. Direction.	Force.	Rain. In. Pts.	Remarks.
1	59	46	72	40	W	Brisk		The weather this month was fine and seasonable, and brought forward with great rapidity the various crops which were retarded by the unfavourable state of the preceding month. Easterly winds chiefly prevailed, and towards the latter part of the month were accompanied with much blight, which in some instances did considerable damage. On the night of the 25th there was a strong gale from N.E.
2	64	44	82	41	SW	Little		
3	61	43	72	37	S	Ditto		
4	64	39	85	32	W	Ditto		
5	62	50	76	48	——	Brisk	.07	
6	65	41	78	33	SW	Ditto	.05	
7	61	41	79	37	——	Ditto		
8	62	45	83	40	W	Little		
9	67	40	90	33	NE	Ditto		
10	71	43	99	39	E	Brisk		
11	65	49	82	42	——	Ditto		
12	65	42	85	35	——	Ditto		
13	69	39	90	30	NE	Little		
14	73	43	98	33	W	Ditto		
15	74	50	+101	45	NE	Ditto	.04	
16	66	41	87	38	E	Ditto		
17	69	—38	92	—29	——	Ditto		
18	68	44	90	37	——	Ditto		
19	70	46	91	36	——	Brisk		
20	73	46	92	38	NE	Ditto		
21	71	41	93	31	E	Ditto		
22	73	43	95	34	——	Little		
23	+80	44	101	34	SW	Ditto		
24	67	44	75	40	NE	Ditto	.36	
25	62	45	76	41	——	Strong		
26	69	46	89	39	——	Brisk		
27	72	47	91	40	——	Ditto		
28	74	47	94	41	——	Ditto		
29	66	48	84	42	——	Ditto		
30	59	41	72	32	——	Ditto		
31	69	44	89	36	W	Little		
	67.41	43.87	86.54	37.51			.52	

Mean Pressure from the 3 daily observations 30.060 inches.
—— Temperature .....Ditto..... 56°.78
—— Dew Point .....Ditto..... 48°.98
—— Degree of Dryness ....Ditto..... 7°.79
—— Degree of Moisture ...Ditto..... 764
—— Force of Vapour .....Ditto..... 0.376 inch.
Least observed degree of Moisture 44¹
Maximum Temperature in Shade ..... 80°
Minimum Temperature in ditto..... 38°
Maximum Temperature in the Sun .... 101°
Minimum of Terrestrial Radiation ..... 29°
Mean Temperature of External air ..... 55°.64

WINDS.

North.....	0 days.	N. East....	11 days.
East.....	9 ..	S. East	0 ..
South	1 ..	N. West....	0 ..
West.....	6 ..	S. West	4 ..

31 days.

Amount of Rain ..... 0.52 inch.

JUNE.

		Morning.					Noon.					Night.				
1829	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
● M.	1	30.233	55	53	2	Cloudy	30.271	62	52	10	Cloudy	30.279	56	53	3	Fine
T.	2	—.287	57	51	6	Very Fine	—.268	72	59	13	Very Fine	—.237	64	59	5	Very Fine
W.	3	—.234	65	62	3	Ditto	—.176	79	61	18	Ditto	—.106	63	61	2	Ditto
Th.	4	—.119	64	60	4	Ditto	—.082	71	55	16	Ditto	29.974	65	62	3	Ditto
F.	5	29.956	60	55	5	Ditto	—.029	66	42	24	Ditto	30.178	52	46	6	Fine
S.	6	30.240	50	42	8	Ditto	—.249	59	40	19	Fine but Cold	—.294	45	40	5	Do. but Cold
S.	7	—.357	51	45	6	Fine but Cold	—.360	61	37	24	Very Fine	—.364	50	46	4	Fine
M.	8	—.347	55	50	5	Overcast	—.346	59	59	—	Slight Rain	—.362	46	44	2	Ditto
☽ T.	9	—.365	53	49	4	Cloudy	—.297	64	44	20	Very Fine	—.348	47	44	3	Ditto
W.	10	—.383	56	49	7	Very Fine	—.369	66	45	21	Ditto	—.375	50	46	4	Ditto
Th.	11	—.418	55	50	5	Ditto	—.366	71	54	17	Ditto	—.339	54	52	2	Very Fine
F.	12	—.364	54	52	2	Hazy	—.313	73	55	18	Ditto	—.310	57	55	2	Ditto
S.	13	—.297	60	55	5	Very Fine	—.242	79	56	23	Ditto	—.300	64	62	2	Ditto
S.	14	—.225	62	56	6	Ditto	—.189	80	58	22	Ditto	—.124	61	56	5	Ditto
M.	15	—.104	61	59	2	Ditto	—.035	75	55	20	Ditto	29.980	60	56	4	Ditto
T.	16	29.794	64	58	6	Ditto	29.832	59	56	3	Cloudy	—.848	53	49	4	Ditto
○ W.	17	—.867	54	52	2	Ditto	—.836	64	49	15	Sultry with Thunder	—.816	54	52	2	Ditto
Th.	18	—.859	52	50	2	Ditto	—.926	65	47	18	Ditto	30.036	51	51	—	Cloudy
F.	19	30.030	55	51	4	Ditto	—.994	69	45	24	Very Fine	29.948	59	52	7	Very Fine
S.	20	29.921	60	54	6	Ditto	—.834	75	50	25	Ditto	—.751	61	61	—	Wet
S.	21	—.774	63	63	—	Overcast	—.796	73	60	13	Ditto	—.810	60	58	2	Cloudy
M.	22	—.826	60	60	—	Wet	—.794	65	65	—	Wet	—.808	58	58	—	Fine
T.	23	—.887	65	63	2	Very Fine	—.939	75	60	15	Very Fine	—.959	57	57	—	Cloudy
☾ W.	24	—.994	60	56	4	Ditto	30.020	76	65	11	Ditto	30.074	58	56	2	Fine
Th.	25	30.056	63	57	6	Ditto	29.996	76	58	18	Fine with Showers	29.924	62	61	1	Ditto
F.	26	29.935	60	59	1	Fine	—.899	74	62	12	Very Fine	—.836	62	62	—	Slight Rain
S.	27															
S.	28	29.420	59	59	—	Showery	29.432	70	68	2	Sultry with Thunder	29.479	55	55	—	Showery
M.	29	—.685	55	55	—	Ditto	—.711	60	60	—	Drizzly	—.740	56	54	2	Cloudy
T.	30	—.748	60	60	—	Ditto	—.703	69	69	—	Ditto	—.719	58	58	—	Showery
	*	30.059	58.21	54.65	3.55		30.045	69.20	54.69	14.51		30.045	56.48	54.	2.48	

* No observations were made upon the 27th. The means are therefore deduced from 29 days only.

JUNE.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	67	44	91	35	NW	Brisk		From the 1st to the 16th the weather was dry and warm, but from that time to the end of the month much rain fell, generally in heavy showers, and accompanied by thunder on the 17th, 18th and 28th. The temperature during some of the nights was remarkably low, especially on the 6th, 10th, and 16th.
2	77	57	101	50	W	Ditto		
3	82	59	104	57	——	Ditto		
4	76	54	96	47	——	Ditto		
5	69	42	91	32	N	Ditto		
6	61	37	84	29	NW	Ditto		
7	64	42	85	33	NE	Little		
8	60	44	75	36	——	Ditto	.04	Mean Pressure from the 3 daily observations 30.049 inches.
9	66	41	90	31	——	Brisk		—— Temperature ..... Ditto ..... 61°.29
10	70	—37	95	26	——	Ditto		—— Dew Point ..... Ditto ..... 54°.44
11	75	46	100	36	——	Little		—— Degree of Dryness ... Ditto ..... 6°.84
12	79	44	108	35	SW	Ditto		—— Degree of Moisture .. Ditto 797
13	+84	52	+110	44	——	Ditto		—— Force of Vapour ..... Ditto ..... 0.460 inch.
14	83	49	103	40	——	Ditto		Least observed degree of Moisture 441
15	77	50	97	42	S	Ditto		Maximum Temperature in Shade ..... 84°
16	62	39	83	31	SW	Ditto	.02	Minimum Temperature in ditto ..... 37°
17	70	48	95	44	——	Ditto	.01	Maximum Temperature in the Sun .....110°
18	69	46	92	40	NE	Ditto	.07	Minimum of Terrestrial Radiation ..... 26°
19	75	48	93	40	E	Brisk		Mean Temperature of External air ..... 60°.5
20	76	58	94	54	S	Ditto	.13	
21	74	53	92	45	SE	Ditto		WINDS.
22	66	55	67	47	S	Little	.17	
23	76	54	93	50	SW	Ditto	.20	North .....1 days | N. East.....6 days
24	77	49	96	42	——	Brisk		East .....2 .. | S. East.....1 ..
25	77	56	100	52	E	Ditto	.38	South .....5 .. | N. West.....4 ..
26	76	57	95	54	S	Little	.19	West .....3 .. | S. West.....7 ..
27							.80	29 days.
28	73	53	85	51	NW	Brisk	.08	
29	60	49	67	47	——	Ditto	.06	
30	70	55	87	50	S	Ditto	.22	Amount of Rain.....2.37 inch.
	72.10	48.90	92.03	42.07			2.37	

JULY.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
● W.	1	29.642	58	58	—	Heavy Rain	29.535	62	62	—	Rainy	29.374	60	60	—	Stormy & Wet
Th.	2	—.543	61	58	3	Fine	—.598	66	60	6	Fine	—.640	55	54	1	Fine
F.	3	—.594	60	60	—	Overcast	—.483	62	62	—	Stormy & Wet	—.281	55	55	—	Stormy & Wet
S.	4	—.574	60	57	3	Fine	—.493	56	56	—	Ditto	—.565	53	53	—	Showery
S.	5	—.586	60	60	—	Cloudy with Showers	—.637	65	65	—	Showery	—.751	55	55	—	Fine
M.	6	—.830	64	62	2	Cloudy	—.856	71	56	15	Very Fine	—.959	57	56	1	Very Fine
T.	7	—.844	59	59	—	Overcast	—.737	60	60	—	Stormy & Wet	—.725	60	60	—	Fine
W.	8	—.804	62	61	1	Very Fine	—.767	71	60	11	Very Fine	—.703	57	56	1	Ditto
◗ Th.	9	—.703	62	58	4	Ditto	—.765	62	58	4	Cloudy	—.848	50	50	—	Ditto
F.	10	—.872	60	58	2	Fine	—.826	69	59	10	Very Fine	—.679	59	59	—	Wet
S.	11	—.555	61	61	—	Overcast	—.432	68	68	—	Rainy	—.382	57	57	—	Showery
S.	12	—.422	59	59	—	Cloudy with Heavy Showers.	—.434	66	66	—	Showery	—.598	59	59	-	Ditto
M.	13	—.604	62	62	—	Drizzly	—.699	69	65	4	Cloudy	—.792	63	62	1	Sultry
T.	14	—.848	65	63	2	Fine	—.838	67	67	—	Heavy Rain	—.840	61	61	—	Fair & Ditto
W.	15	—.975	67	66	1	Ditto	—.955	74	64	10	Very Fine	—.933	60	60	—	Cloudy
○ Th.	16	—.922	65	60	5	Very Fine	—.927	69	60	9	Ditto	—.966	53	51	2	Fine
F.	17	—.912	59	59	—	Cloudy	—.678	60	60	—	Heavy Rain	—.550	61	61	—	Showery
S	18	—.532	62	62	—	Rainy	—.556	64	64	—	Ditto	—.678	60	60	—	Ditto
S.	19	—.783	67	63	4	Very Fine	—.940	72	62	10	Very Fine	30.065	54	54	—	Slight Rain
M.	20	30.079	65	62	3	Ditto	30.103	69	60	9	Ditto	—.224	63	61	2	Very Fine
T.	21	—.210	61	58	3	Ditto	—.220	72	55	17	Ditto	—.125	56	53	3	Ditto
W.	22	—.201	60	58	2	Ditto	—.162	76	65	11	Ditto	—.167	61	59	2	Ditto
◖ Th.	23	—.157	62	61	1	Cloudy	—.139	75	65	10	Ditto	—.076	59	57	2	Ditto
F.	24	29.980	67	63	4	Very Fine	29.933	74	68	6	Sultry	29.812	66	65	1	Sultry
S.	25	—.830	65	65	—	Sultry	—.850	74	70	4	Ditto	—.878	56	55	1	Cloudy
S.	26	—.931	58	57	1	Cloudy	30.014	60	58	2	Cloudy	30.087	51	51	—	Clear & Cold
M.	27	30.063	55	53	2	Fine	—.077	67	55	12	Very Fine	—.118	54	51	3	Very Fine
T.	28	—.079	57	54	3	Ditto	29.986	71	51	20	Ditto	29.876	58	56	2	Cloudy
W.	29	29.651	57	57	—	Wet	—.625	67	67	—	Showery	—.852	52	52	—	Fine
⊙ Th.	30	—.710	60	58	2	Very Fine	—.715	72	54	18	Sultry	—.886	55	55	—	Fair
F.	31	—.951	53	53	—	Cloudy	30.054	67	55	12	Fine	30.148	52	52	—	Heavy Dew
		29.812	61.00	59.50	1.5		29.805	67.64	61.19	6.45		29.824	57.16	56.45	.71	

JULY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	64	54	66	52	S	Strong	.32	In the course of this month there were only about ten days of fine weather, the rest was altogether so unseasonable and wet as is rarely witnessed. The mean temperature was about the average height, but that of the dew point was 5° above it. The depth of rain was no less than twice the average amount of the month. The gale on the night of the 3d was very boisterous. There were two remarkably heavy thunder-storms, one on the morning of the 25th, and the other in the afternoon of the 30th; the former was accompanied with much rain and hail, which did considerable damage. Some idea may be formed of the storm when it is stated that upwards of an inch of rain fell in the course of an hour.
2	69	52	85	45	——	Brisk	.07	
3	64	46	79	44	SW	Stormy	.16	
4	66	46	83	39	——	Strong	.16	
5	70	50	90	43	NW	Brisk	.18	
6	74	54	92	47	W	Ditto		
7	62	54	62	49	SW	Stormy	.23	
8	72	53	93	47	——	Brisk		
9	70	47	97	39	W	Little		
10	69	55	81	50	S	Ditto	.09	
11	69	54	72	48	——	Ditto	.41	
12	71	54	85	48	——	Ditto	.08	
13	71	61	84	57	SW	Ditto		
14	73	54	84	50	——	Ditto	.27	
15	75	53	92	46	——	Ditto	.02	
16	73	51	92	42	S	Ditto		
17	65	57	70	53	SE	Brisk	.46	
18	64	59	64	55	SW	Strong	.79	
19	74	48	95	43	W	Little		
20	73	50	94	42	——	Brisk		
21	77	56	98	49	——	Little		
22	78	55	100	48	SW	Ditto		
23	77	54	+104	47	NE	Ditto		
24	74	61	85	57	——	Ditto	1.03	
25	+78	55	94	53	N	Brisk		
26	60	45	65	40	——	Ditto		
27	70	—42	91	—34	NE	Little		
28	74	57	94	50	SE	Ditto		
29	70	47	88	38	E	Ditto	.17	
30	72	50	101	43	NE	Brisk	.88	
31	68	44	90	37	N	Ditto		
	70.51	52.19	86.12	46.29			5.23	

Mean Pressure from the 3 daily observations 29.813 inches.
—— Temperature .....Ditto..... 61°.93
—— Dew Point .....Ditto..... 59°.04
—— Degree of Dryness ....Ditto..... 2°.88
—— Degree of Moisture....Ditto..... 941
—— Force of Vapour.....Ditto..... 0.543 inch.
Least observed degree of Moisture..... 520
Maximum Temperature in Shade..... 78°
Minimum Temperature in ditto..... 42°
Maximum Temperature in the Sun .... 104°
Minimum of Terrestrial Radiation ..... 34°
Mean Temperature of External Air..... 61°.35

WINDS.

North.....3 days.		N. East ....4 days.	
East 1	..	S. East.....2	.
South 6	..	N. West....1	..
West 5	..	S. West 9	..

31 days.

Amount of Rain ..... 5.23 inches.

AUGUST.

	1829.	Days.	Morning. Barom.	Morning. Hygrometer.			Morning. Weather.	Noon. Barom.	Noon. Hygrometer.			Noon. Weather.	Night. Barom.	Night. Hygrometer.			Night. Weather.
	S.	1	30.229	60	58	2	Fine	30.220	70	61	9	Fine	30.218	55	55	—	Heavy Dew
	S.	2	—.250	63	60	3	Very Fine	—.227	72	61	11	Very Fine	—.210	57	55	2	Very Fine
	M.	3	—.107	64	62	2	Ditto	—.066	64	64	—	Overcast, Wet	29.884	49	49	—	Stormy
	T.	4	29.802	60	59	1	Fine	29.777	65	60	5	Cloudy	—.748	56	56	—	Cloudy
	W.	5	—.863	57	56	1	Cloudy	—.979	65	60	5	Fine	30.049	53	52	1	Fine
	Th.	6	30.057	60	60	—	Hazy	30.050	71	65	6	Cloudy and Sultry	—.127	60	59	1	Ditto
☽	F.	7	—.157	64	64	—	Drizzly	—.187	76	69	7	Very Fine	—.201	62	62	—	Heavy Dew
	S.	8	—.214	62	58	4	Very Fine	—.057	79	70	9	Ditto	—.186	66	59	7	Very Fine
	S.	9	—.133	60	58	2	Cloudy	—.076	73	68	5	Cloudy	29.968	63	63	—	Cloudy
	M.	10	29.926	59	59	—	Heavy Rain	29.914	70	60	10	Very Fine	—.985	57	53	4	Very Fine
	T.	11	30.106	60	57	3	Very Fine	30.129	70	55	15	Ditto	30.137	60	60	—	Heavy Dew
	W.	12	—.111	60	59	1	Heavy dew Fine	—.076	73	59	14	Ditto	29.941	62	62	—	Cloudy
	Th.	13	—.103	62	61	1	Fine	29.724	72	68	4	Overcast	—.627	63	63	—	Showery
○	F.	14	29.431	63	63	—	Showery	—.417	71	71	—	Wet	—.482	56	56	—	Ditto
	S.	15	—.571	55	54	1	Stormy	—.645	56	56	—	Ditto	—.780	51	51	—	Ditto
	S.	16	—.994	58	56	2	Fine	30.047	66	63	3	Slight Showers	30.146	49	47	2	Fine
	M.	17	30.173	52	50	2	Ditto	—.162	68	52	16	Very Fine	—.088	53	51	2	Ditto
	T.	18	29.840	58	58	—	Wet	29.758	64	64	—	Wet	29.704	59	59	—	Showery
	W.	19	—.512	60	60	—	Showery	—.497	67	61	6	Showery	—.418	56	56	—	Cloudy
	Th.	20	—.254	59	59	—	Ditto	—.448	64	60	4	Fine	—.687	53	52	1	Fine
☾	F.	21	—.828	54	51	3	Very Fine	—.901	64	52	12	Very Fine	—.979	54	51	3	Ditto
	S.	22	—.935	59	55	4	Overcast	—.836	65	60	5	Cloudy	—.634	60	60	—	Heavy Rain
	S.	23	—.485	64	64	—	Stormy Rain	—.456	69	69	—	Stormy wth showers	—.473	59	59	—	Stormy&wet
	M.	24	—.293	60	59	1	Overcast	—.495	59	59	—	Stormy Rain	—.895	52	50	2	Fine
	T.	25	—.899	55	52	3	Fine	—.972	62	51	11	Very Fine	30.082	51	51	—	Heavy Dew
	W.	26	30.056	61	59	2	Overcast	—.994	66	60	6	Cloudy	29.594	59	59	—	Showery
	Th.	27	29.640	59	52	7	Fine	—.598	62	56	6	Showery	—.293	52	52	—	Stormy Rain
	F.	28	—.555	58	56	2	Stormy	—.650	57	55	2	Ditto	—.759	55	54	1	Stormy
●	S.	29	—.891	57	56	1	Do.— Showers	30.043	65	60	5	Stormy	30.157	53	52	1	Fine
	S.	30	30.203	57	54	3	Fine	—.170	63	55	8	Fine	—.134	55	53	2	Ditto
	M.	31	—.090	57	53	4	Ditto	—.072	62	56	6	Cloudy	—.040	54	53	1	Cloudy
			29.893	59.22	57.48	1.74		29.891	66.77	60.64	6.13		29.891	56.26	55.29	0.97	

AUGUST.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	72	46	98	38	W	Brisk			
2	75	54	97	45	S	Little			
3	64	47	72	44	W	Stormy		17	
4	65	53	77	47	NW	Brisk		03	
5	69	48	90	41	——	Ditto			
6	71	60	82	55	S	Little		07	
7	76	52	98	47	SW	Ditto			
8	+81	55	+103	49	——	Ditto			
9	74	57	85	55	S	Brisk		33	
10	72	47	94	40	SW	Little		15	
11	72	53	92	45	——	Ditto			
12	75	59	96	55	S	Ditto			
13	74	57	90	51	——	Ditto		12	
14	72	52	76	49	NE	Strong		67	
15	56	49	56	46	NW	Ditto		37	
16	65	42	87	—33	W	Brisk			
17	70	52	90	47	NW	Ditto		17	
18	65	52	65	52	S	Ditto		28	
19	70	54	86	52	W	Ditto		08	
20	65	47	75	38	NW	Ditto		18	
21	69	47	95	40	W	Ditto			
22	66	56	69	55	S	Stormy		48	
23	69	57	75	54	W	Ditto		17	
24	65	48	74	41	NW	Strong		19	
25	66	—40	84	34	W	Brisk			
26	66	56	73	54	S	Stormy		06	
27	67	50	82	50	W	Ditto		37	
28	63	54	75	50	NW	Ditto		11	
29	66	51	84	47	N	Ditto		03	
30	65	52	87	46	NE	Brisk			
31	62	54	66	51	——	Ditto		04	
	68.61	51.64	82.93	46.80				4.07	

Excepting a few days that were sunny and warm, the whole of the month was unusually cold, cloudy and wet, with stormy winds, particularly on the nights of the 15th, 22nd, 26th, and 28th. The amount of rain was no less remarkable than in the preceding month, being nearly 4 times more than what is considered the average for this period of the year.

Mean Pressure from the 3 daily observations 29.891 inches.
—— Temperature ..... Ditto ..... 60°.75
—— Dew Point ..... Ditto ..... 57°.80
—— Degree of Dryness ... Ditto ..... 2°.95
—— Degree of Moisture ... Ditto 907
—— Force of Vapour ..... Ditto ..... 0.508 inch.
Least observed degree of Moisture 592
Maximum Temperature in Shade ..... 81°
Minimum Temperature in ditto ..... 40°
Maximum Temperature in the Sun .....103°
Minimum of Terrestrial Radiation ..... 33°
Mean Temperature of External Air ..... 60°.12

WINDS.

North.....1 days.		N. East.....3 days.	
East.....0	..	S. East 0	..
South.....8	..	N. West 7	..
West.....8	..	S. West.....4	..

31 days.

Amount of Rain.....4.07 inches.

SEPTEMBER.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	29.998	58	57	1	Cloudy	29.966	63	63	—	Cloudy	29.950	57	57	—	Drizzly
W.	2	—.938	59	59	—	Ditto	—.966	65	61	4	Ditto	30.076	57	55	2	Fine
Th.	3	30.170	54	51	3	Very Fine	30.153	64	50	14	Very Fine	—.126	55	52	3	Ditto
F.	4	—.026	52	50	2	Ditto	29.988	61	50	11	Ditto	29.909	58	57	1	Ditto
S.	5	29.693	56	56	—	Cloudy	—.636	62	61	1	Overcast	—.444	60	60	—	Showery
☽ S.	6	—.523	62	62	—	Slt. Showers	—.502	67	55	12	Fine	—.533	51	51	—	Ditto
M.	7	—.654	59	58	1	Fine	—.633	66	58	8	Ditto	—.518	57	57	—	Wet
T.	8	—.483	60	59	1	Ditto	—.539	60	60	—	Heavy Rain	—.576	53	52	1	Fine
W.	9	—.654	58	56	2	Ditto	—.723	63	56	7	Very Fine	—.533	57	57	—	Heavy Rain
Th.	10	—.384	61	61	—	Heavy Rain	—.348	69	65	4	Stormy	—.222	59	59	—	Stormy & Wet
F.	11	—.576	57	54	3	Very Fine	—.685	62	56	6	Ditto	—.424	55	55	—	Ditto
S.	12	—.661	57	56	1	Fine	—.626	60	57	3	Cloudy	—.619	46	44	2	Very Fine
○ S.	13	— 558	52	50	2	Ditto	—.494	65	58	7	Ditto	—.289	54	54	—	Showery
M.	14	—.225	52	52	—	Cloudy	—.285	61	52	9	Fine	—.489	49	47	2	Very Fine
T.	15	—.710	55	51	4	Fine	—.675	60	50	10	Ditto	—.861	45	45	—	Ditto
W.	16	—.576	50	50	—	Wet	—.534	54	54	—	Stormy & Wet	—.661	51	51	—	Cloudy
Th.	17	—.875	48	48	—	Foggy	—.829	61	57	4	Cloudy	—.597	52	52	—	Wet
F.	18	—.199	52	52	—	Ditto	—.151	62	62	—	Showery	—.282	52	52	—	Cloudy
S.	19	—.459	53	53	—	Wet	—.615	59	57	2	Ditto	—.825	51	49	2	Clear & Fine
☾ S.	20	—.857	50	47	3	Fine	—.924	59	52	7	Fine	—.853	52	52	—	Fine
M.	21	—.760	55	55	—	Cloudy	—.813	67	56	11	Very Fine	—.953	47	46	1	Ditto
T.	22	—.875	53	53	—	Foggy	—.839	61	55	6	Ditto	—.817	52	52	—	Foggy
W.	23	—.855	51	51	—	Ditto	—.839	62	55	7	Ditto	—.900	53	53	—	Overcast
Th.	24	—.970	53	52	1	Fine	—.978	60	55	5	Ditto	30.053	45	45	—	Foggy
F.	25	30.145	50	49	1	Slight Fog	30.169	62	52	10	Ditto	—.124	44	44	—	Ditto
S.	26	—.244	44	44	—	Foggy	—.240	63	54	9	Ditto	—.189	58	58	—	Overcast
S.	27	29.866	58	58	—	Drizzly	29.856	62	58	4	Cloudy	29.849	48	46	2	Fine
● M.	28	—.875	50	46	4	Fine	—.888	56	50	6	Ditto	—.924	42	42	—	Foggy
T.	29	30.005	40	40	—	Dense Fog	30.061	57	48	9	Very Fine	30.194	39	39	—	Ditto
W.	30	—.136	38	38	—	Ditto	—.257	59	52	7	Ditto	—.252	41	40	1	Fine
		29.765	53.23	52.26	0.96		29.777	61.7	55.6	6.1		29.768	51.33	50.76	0.56	

SEPTEMBER.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	65	55	79	51	NE	Brisk		
2	67	48	85	40	N	Little		
3	68	49	94	42	SW	Ditto		
4	67	47	+94	39	S	Ditto		
5	65	51	80	45	——	Brisk	.05	
6	67	45	83	39	SW	Ditto	.08	
7	67	49	85	41	S	Ditto	.12	
8	69	51	85	45	——	Ditto	.65	
9	67	57	85	54	SE	Little	.47	
10	+70	52	83	48	S	Strong	.10	
11	66	48	75	45	NW	Stormy	.46	
12	66	42	80	36	W	Brisk	.06	
13	66	47	83	44	S	Little	.03	
14	65	40	81	30	SW	Ditto		
15	64	44	78	35	NW	Brisk	.63	
16	56	40	58	33	NE	Ditto	.14	
17	62	52	64	52	E	Little	.55	
18	63	49	76	45	NW	Brisk	.02	
19	60	43	79	35	N	Little	.09	
20	67	50	87	45	NW	Ditto	.17	
21	68	38	89	31	W	Ditto		
22	66	45	85	39	SW	Ditto		
23	68	45	88	40	NE	Ditto		
24	65	40	86	32	——	Brisk		
25	62	37	83	32	——	Ditto		
26	65	56	77	52	SW	Ditto	.04	
27	66	42	80	36	W	Ditto	.05	
28	61	35	82	28	——	Little		
29	59	—34	75	—25	NW	Ditto		
30	60	39	72	32	N	Brisk		
	64.9	45.6	81.0	39.7			3.71	

The character of this month was much the same as that of the one immediately preceding, cold, cloudy and wet. From the 5th to the 21st it rained more or less every day, excepting on the 14th. The nights of the 10th and 11th were very boisterous. On the afternoon of the 12th some thunder was heard, and on the 15th a heavy thunder-storm was experienced, accompanied by much rain at 4 P.M. Towards the latter part of the month slight fogs were prevalent in the mornings and evenings, which gave it more the character of December than of the first month of Autumn.

Mean Pressure from the 3 daily observations 29.770 inches.
—— Temperature ..... Ditto ..... 55°.42
—— Dew Point ..... Ditto ..... 52°.88
—— Degree of Dryness .... Ditto ..... 2°.54
—— Degree of Moisture .. Ditto 899
—— Force of Vapour ..... Ditto ..... 0.428 inch.
Least observed degree of Moisture 628
Maximum Temperature in Shade ..... 70°
Minimum Temperature in ditto ..... 34°
Maximum Temperature in the Sun ..... 94°
Minimum of Terrestrial Radiation ..... 25°
Mean Temperature of External Air ..... 55°.25

WINDS.

North	3 days	N. East	5 days.
East	1 ..	S. East	1 ..
South	6 ..	N. West ...	5 ..
West	4 ..	S. West	5 ..

30 days.

Amount of Rain..... 3.71 inches.

OCTOBER.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	30.264	46	44	2	Very Fine	30.234	60	55	5	Very Fine	30.183	51	49	2	Fine
F.	2	—.041	53	53	—	Overcast	29.920	60	60	—	Wet	29.947	51	51	—	Foggy
S.	3	29.755	58	58	—	Drizzly	—.945	60	60	—	Ditto	—.908	50	50	—	Cloudy
S.	4	—.915	50	49	1	Fine	—.970	59	53	6	Fine	—.893	54	54	—	Wet
D M.	5	—.586	55	55	—	Stormy Rain	—.621	60	57	3	Showery	—.653	45	44	1	Clear
T.	6	—.667	43	41	2	Clear & Cold	—.702	55	50	5	Clear & Cold	—.723	43	41	2	Ditto
W.	7	—.580	40	40	—	Overcast	—.588	41	41	—	Stormy, rain, snow	—.633	37	35	2	Cold & Stormy
Th.	8	—.837	37	33	4	Cold & Stormy	30.039	48	41	7	Clear & Cold	30.111	38	35	3	Clear & Cold
F.	9	30.153	34	30	4	Clear & Cold	—.266	49	40	9	Ditto	—.391	33	33	—	Ditto
S.	10	—.458	38	38	—	Overcast	—.384	57	54	3	Fine	—.386	53	53	—	Overcast
S.	11	—.335	51	50	1	Cloudy	—.212	58	54	4	Cloudy	—.135	55	54	1	Fine
○ M	12	—.147	52	51	1	Ditto	—.159	56	53	3	Ditto	—.122	55	55	—	Cloudy
T.	13	—.000	56	54	2	Fine	29.900	56	54	2	Ditto	29.708	54	54	—	Overcast
W.	14	29.413	53	53	—	Stormy	—.567	50	46	4	Cold & Stormy	—.973	42	38	4	Clear & Stormy
Th.	15	30.212	40	36	4	Fine	30.262	49	39	10	Clear & Cold	30.289	33	33	—	Cold & Foggy
F.	16	—.112	46	46	—	Overcast	29.932	53	50	3	Cloudy	29.843	55	54	1	Fine
S.	17	—.067	52	48	4	Fine	30.120	57	50	7	Very Fine	30.161	51	50	1	Ditto
S.	18	—.138	53	51	2	Ditto	—.111	63	53	10	Ditto	—.137	52	52	—	Overcast
☾ M.	19	—.095	54	53	1	Overcast	—.065	63	63	—	Drizzly	—.007	58	58	—	Ditto
T.	20	29.892	56	55	1	Cloudy	29.847	60	57	3	Fine	29.803	53	53	—	Drizzly
W.	21	—.817	52	50	2	Ditto	—.736	58	54	4	Stormy	—.647	49	49	—	Stormy
Th.	22	—.669	50	49	1	Fine	—.710	53	51	2	Cloudy	—.891	45	45	—	Heavy Dew
F.	23	—.975	42	42	—	Do. Heavy dew	—.973	52	42	10	Very Fine	—.985	35	35	—	Overcast
S.	24	—.983	43	42	1	Fine	—.954	54	48	6	Ditto	—.975	40	40	—	Foggy
S.	25	30.176	42	42	—	Slight Fog	30.204	54	42	12	Ditto	30.311	40	40	—	Ditto
M.	26	—.378	45	45	—	Foggy	—.377	52	44	8	Cloudy	—.402	39	37	2	Fine
● T.	27	—.423	40	40	—	Dense Fog	—.368	53	49	4	Fine	—.295	43	43	—	Foggy
W.	28	—.269	42	42	—	Stormy	—.309	46	44	2	Cold & Stormy	—.388	38	36	2	Fine
Th.	29	—.386	41	38	3	Fine	—.328	47	32	15	Very Fine	—.290	38	35	3	Ditto
F.	30	—.126	45	44	1	Overcast	—.033	56	53	3	Cloudy	29.941	53	53	—	Cloudy
S.	31	29.962	46	46	—	Cloudy	—.001	46	35	11	Clear & Cold	30.108	34	31	3	Clear & Cold
		30.026	46.93	45.74	1.19		30.027	54.35	49.16	5.19		30.039	45.70	44.83	.87	

OCTOBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	62	50	70	46	E	Brisk		A few days in the beginning of the month were unseasonable, particularly the 7th, during the afternoon of which there fell large flakes of snow, that covered the ground a considerable thickness. All the tender plants, such as Dahlias, &c. were in consequence killed by it, and by the frosts in the succeeding nights of the 8th and 9th. Upon the whole, the weather during the month was dry, cold and stormy; but not so much so as to give it the character of unseasonable. The amount of rain was less than the average amount for this month. There were two very heavy gales of wind, viz. on the nights of the 7th and 14th.
2	60	49	61	45	——	Ditto	.08	
3	60	45	60	38	NW	Ditto	.44	
4	63	54	79	50	SW	Ditto	.11	
5	61	40	69	36	NE	Stormy	.07	
6	57	36	60	27	E	Brisk		
7	45	33	45	25	NE	Stormy	.58	
8	50	30	59	23	——	Brisk		
9	53	—29	69	20	NW	Ditto		
10	58	38	77	32	SW	Ditto		
11	60	50	64	48	W	Ditto		
12	59	50	70	43	——	Little		
13	58	52	81	47	——	Ditto	.07	
14	53	36	59	29	N	Strong		Mean Pressure from the 3 daily observations 30.030 inches.
15	52	31	71	23	NW	Brisk		—— Temperature.....Ditto..... 48°.99
16	57	44	68	35	S	Ditto		—— Dew Point.....Ditto..... 46°.57
17	+65	48	79	45	SW	Ditto		—— Degree of Dryness....Ditto..... 2°.41
18	64	50	+82	43	W	Little		—— Degree of Moisture....Ditto..... 936
19	64	54	77	45	——	Ditto		—— Force of Vapour.....Ditto..... 0.352 inch.
20	61	46	66	39	SW	Brisk	.05	Least observed degree of Moisture..... 660
21	59	47	69	42	S	Ditto	.11	Maximum Temperature in the Shade.... 65°
22	55	35	64	27	NW	Little		Minimum Temperature in ditto..... 29°
23	56	30	73	21	——	Ditto		Maximum Temperature in the Sun..... 82°
24	54	34	74	25	NE	Ditto		Minimum of Terrestrial Radiation..... 20°
25	58	36	75	32	N	Ditto		Mean Temperature of External Air..... 48°.7
26	52	33	54	25	——	Ditto		
27	55	37	70	30	NE	Ditto	.03	
28	51	36	70	30	——	Ditto		
29	56	33	71	26	N	Ditto		
30	56	42	66	39	SW	Brisk	.06	
31	49	29	62	—20	NW	Ditto		
	56.87	40.54	68.19	34.09			1.60	

WINDS.

North	4 days.	N. East.....	6 days.
East.....	3 ..	S. East.....	0 ..
South	2 ..	N. West	6 ..
West.....	5 ..	S. West.....	5 ..

31 days.

Amount of Rain ..... 1.60 inch.

NOVEMBER.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	30.207	35	31	4	Clear & Cold	30.213	44	33	11	Fine	30.217	30	30	—	Slt Fog, Cold
M.	2	—.233	35	33	2	Ditto	—.235	50	41	9	Very Fine	—.273	43	42	1	Cloudy
T.	3	—.227	45	43	2	Cloudy	—.182	47	45	2	Cloudy	—.102	45	44	1	Ditto
☽ W.	4	29.843	44	44	—	Overcast	29.677	51	51	—	Wet	29.700	50	50	—	Wet
Th.	5	—.777	40	40	—	Cloudy	30.019	53	47	6	Very Fine	30.063	46	45	1	Fine
F.	6	—.986	47	46	1	Fine	29.946	52	48	4	Ditto	29.898	47	47	—	Ditto
S.	7	—.930	44	42	2	Very Fine	30.025	49	38	11	Ditto	—.968	36	36	—	Heavy Dew
S	8	30.046	40	38	2	Ditto	—.092	48	44	4	Ditto	30.064	39	38	1	Fine
M	9	—.056	44	44	—	Ditto	—.100	50	47	3	Ditto	—.140	43	43	—	Cloudy
T.	10	—.036	45	45	—	Overcast	29.963	47	47	—	Wet	29.811	50	50	—	Wet
○ W.	11	—.009	39	39	—	Foggy	30.038	48	48	—	Ditto	—.983	47	47	—	Ditto
Th.	12	29.910	52	52	—	Drizzly	29.861	58	58	—	Drizzly	—.827	55	55	—	Cloudy
F.	13	30.031	44	44	—	Hazy	30.157	45	43	2	Hazy	30.176	41	41	—	Drizzly
S.	14	—.206	42	42	—	Ditto	—.156	46	46	—	Ditto	—.106	45	45	—	Ditto
S.	15	29.898	43	43	—	Drizzly	29.847	52	49	3	Fine	29.945	39	39	—	Ditto
M.	16	30.225	41	37	4	Fine	30.269	43	30	13	Clear & Cold	30.364	33	30	3	Clear & Cold
T.	17	—.395	32	30	2	Clear & Cold	—.354	42	36	7	Ditto	—.343	39	37	2	Fine
☾ W.	18	—.416	40	37	3	Ditto	—.422	43	39	4	Cloudy & Cold	—.471	35	34	1	Ditto
Th.	19	—.461	26	26	—	Hazy & Frosty	—.449	42	42	—	Foggy	—.423	25	25	—	Dense Fog
F.	20	—.412	27	27	—	Dense Fog	—.396	31	30	1	Ditto	—.380	25	25	—	Ditto
S.	21	—.354	30	30	—	Ditto	—.296	39	39	—	Cloudy & Cold	—.159	30	30	—	Clear & Cold
S.	22	29.707	38	38	—	Drizzly	29.591	40	40	—	Stormy & Wet	29.555	38	38	—	Stormy
M.	23	—.648	39	38	1	Cloudy	—.702	43	36	7	Do. but Fair	—.850	39	39	—	Drizzly
T.	24	—.706	36	33	3	Stormy	—.634	37	33	4	Cold & Stormy	—.571	36	36	—	Stormy with snow
W.	25	—.577	30	30	—	Cloudy	—.654	31	31	—	Drizzly	—.843	34	34	—	Drizzly
● Th.	26	—.896	36	36	—	Drizzly	—.890	40	39	1	Hazy	—.900	36	35	1	Clear
F.	27	—.880	37	37	—	Foggy	—.783	39	39	—	Foggy	—.779	40	40	—	Foggy
S.	28	—.795	39	39	—	Ditto	—.787	42	42	—	Hazy	—.842	40	40	—	Ditto
S.	29	—.894	42	42	—	Hazy	—.874	44	44	—	Drizzly	—.898	41	41	—	Drizzly
M.	30	—.870	41	41	—	Ditto	—.850	41	39	2	Cloudy	—.878	39	39	—	Cloudy
		30.063	39.1	38.23	.86		30.046	44.6	41.46	3.13		30.052	39.53	33.16	.36	

NOVEMBER.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	46	28	62	19	N	Brisk			From the 1st to the 10th the weather was fine and seasonable, excepting the 4th which was stormy and wet. The greater part of the month was either dull and cloudy, or foggy. The nights of the 19th and 20th were so very foggy that the coaches to and from London were obliged to be guided by torch-light. The mails in consequence were upwards of an hour behind their usual time of passing Turnham Green. There was a strong gale from the NE. on the night of the 24th, and on the morning of the 25th the ground was covered with snow to the depth of 3 inches which remained until the afternoon of the 26th.
2	54	35	70	26	SW	Little			
3	49	42	53	35	W	Ditto			
4	51	35	54	29	S	Brisk		34	
5	56	42	70	35	SW	Ditto			
6	56	37	+72	32	——	Ditto			
7	54	29	71	20	NW	Little			
8	51	40	62	35	W	Ditto			
9	52	35	67	30	——	Brisk			
10	53	34	60	30	SW	Ditto		51	
11	54	42	62	42	S	Little		28	
12	+59	44	59	40	NW	Ditto		04	
13	45	40	45	35	NE	Brisk		02	
14	50	41	50	40	N	Ditto			
15	55	33	62	27	NE	Ditto		06	
16	44	—21	60	—15	——	Ditto			
17	43	31	64	25	N	Ditto			
18	43	22	65	15	NW	Ditto			
19	43	23	55	15	NE	Little			
20	38	24	52	19	S	Ditto			
21	39	26	39	20	SE	Ditto			
22	44	35	44	31	S	Brisk		08	
23	44	36	46	32	NE	Ditto		03	
24	39	30	41	29	——	Stormy		41	
25	34	30	34	28	E	Brisk		05	
26	40	35	40	30	——	Little			
27	41	35	41	35	SE	Ditto		01	
28	42	39	42	38	N	Ditto			
29	44	38	44	35	NE	Ditto		03	
30	42	38	47	36	SE	Brisk			
	46.83	33.96	54.43	29.23			1.86		

Mean Pressure from the 3 daily observations 30.053 inches.
—— Temperature.....Ditto..... 41°.07
—— Dew Point.....Ditto..... 39°.61
—— Degree of Dryness.....Ditto..... 1°.45
—— Degree of Moisture.....Ditto..... 931
—— Force of Vapour.....Ditto..... 0.272 inch.
Least observed degree of Moisture..... 632
Maximum Temperature in Shade ..... 59°
Minimum Temperature in ditto..... 21°
Maximum Temperature in the Sun..... 72°
Minimum of Terrestrial Radiation..... 15°
Mean Temperature of External Air..... 40°.39

WINDS.

North.....4 days		N. East.....7 days	
East 2	..	S. East.....3	..
South 4	..	N. West.....3	..
West 3	.	S. West.....4	..

30 days.

Amount of Rain.....1.86 inch.

DECEMBER.

	1829.	Days.	Morning. Barom.	Morning. Hygrometer.			Morning. Weather.	Noon. Barom.	Noon. Hygrometer.			Noon. Weather.	Night. Barom.	Night. Hygrometer.			Night. Weather.
☽	T.	1	29.856	40	40	—	Hazy	29.814	41	38	3	Clear & Cold	29.821	40	40	—	Overcast
	W.	2	—.783	39	38	1	Cloudy & Cold	—.771	44	42	2	Cloudy & Do.	—.741	41	41	—	Drizzly
	T.	3	—.822	41	41	—	Foggy	—.834	44	42	2	Cloudy	—.840	42	42	—	Foggy
	F.	4	—.820	43	42	1	Clear & Fine	—.834	47	45	2	Ditto	30.038	44	44	—	Ditto
	S.	5	30.297	46	46	—	Cloudy	30.388	49	48	1	Hazy	—.419	45	45	—	Ditto
	S.	6	—.548	40	40	—	Hazy	—.550	41	39	2	Ditto	—.516	30	30	—	Do. & Frosty
	M.	7	—.420	26	26	—	Ditto	—.370	33	33	—	Overcast	—.332	33	33	—	Slight Fog
	T.	8	—.354	34	33	1	Fine	—.280	37	32	5	Fine	—.541	33	31	2	Clear & Fine
	W.	9	—.435	32	30	2	Cloudy	—.352	31	29	2	Do. but Cold	—.303	31	31	—	Foggy
○	T.	10	—.186	33	33	—	Foggy	—.160	36	35	1	Fine	—.177	30	29	1	Fine
	F.	11	—.213	37	37	—	Hazy	—.208	40	37	3	Cloudy	—.231	39	38	1	Ditto
	S.	12	—.228	39	38	1	Cloudy	—.218	41	39	2	Ditto	—.259	44	43	1	Ditto
	.S	13	—.257	42	40	2	Fine	—.253	47	44	3	Very Fine	—.261	33	33	—	Ditto
	M.	14	—.340	32	32	—	Dense Fog	—.372	33	33	—	Foggy	—.390	32	32	—	Dense Fog
	T.	15	—.396	32	32	—	Ditto	—.356	34	34	—	Ditto	—.346	40	40	—	Foggy
	W.	16	—.329	37	37	—	Fine	—.219	40	36	4	Fine	—.178	37	37	—	Overcast
	T.	17	—.136	33	33	—	Cold & Cloudy	29.916	37	34	3	Cold & Cloudy	29.845	28	28	—	Clear & Cold
☾	F.	18	29.683	33	33	—	Snowy	—.690	37	35	2	Ditto	—.849	35	35	—	Sleet
	S.	19	—.915	34	33	1	Cloudy	—.889	34	30	4	Clear & Cold	—.849	34	34	—	Ditto
	S.	20	—.929	32	31	1	Ditto	—.950	35	33	2	Ditto	—.980	31	30	1	Dull
	M.	21	—.982	26	24	2	Do. & Cold	—.905	32	32	—	Snowy	—.849	30	30	—	Clear & Cold
	T.	22	—.778	30	30	—	Ditto	—.784	35	35	—	Dull & Cloudy	—.818	31	29	2	Frosty
	W.	23	—.820	30	28	2	Clear & Cold	—.748	29	27	2	Ditto	—.749	26	25	1	Clear & Do.
	T.	24	—.781	27	24	3	Ditto	—.825	28	23	5	Frosty & Fine	—.963	31	29	2	Overcast
	F.	25	30.101	31	26	5	Fine	30.133	32	24	8	Ditto	30.214	27	24	3	Fine
●	S.	26	—.415	27	23	4	Ditto	—.421	28	20	8	Ditto	—.468	25	22	3	Do. but Cold
	S.	27	—.484	29	24	5	Do. but Cold	—.478	30	24	6	Ditto	—.462	21	17	4	Ditto
	M.	28	—.425	20	17	3	Ditto	—.407	29	22	7	Ditto	—.349	29	29	—	DullwithSnow
	T.	29	—.428	24	22	2	Clear & Cold	—.395	28	27	1	Dull & Cold	—.430	26	26	—	Sleet
	W.	30	—.519	30	28	2	Dull & Cloudy	—.509	30	28	2	Ditto	—.537	31	29	2	Clear & Cold
	Th.	31	—.585	31	28	3	Ditto	—.603	32	28	4	Clear & Fine	—.656	29	28	1	Ditto
			30.169	33.22	31.90	1.32		30.149	35.93	33.16	2.77		30.171	33.16	32 28	.77	

DECEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	45	37	57	35	E	Brisk		The first part of this month, though dull and hazy, was nevertheless seasonable and mild. On the morning of the 14th the Fog was so very dense that coachmen and others were obliged to lead their horses; towards noon it cleared off, but at night became as bad as in the morning. The mails were delayed upwards of an hour by it. The 15th was much the same as the 14th, but not quite so dense. Snow fell on the 18th and 21st to about 2 inches in depth, and the Frost set in with severity and continued to the end of the month. The Barometer was upon the whole steady and high.
2	45	40	45	38	——	Ditto		
3	44	40	45	33	SE	Little		
4	47	42	47	37	——	Ditto		
5	+51	40	53	36	SW	Ditto		
6	41	21	41	15	W	Ditto		
7	34	32	34	27	——	Ditto		
8	37	30	45	27	NE	Brisk		
9	31	30	33	20	——	Ditto		
10	39	25	39	14	E	Little		
11	40	36	41	31	SE	Brisk		
12	44	37	50	30	SW	Ditto		
13	50	28	+60	20	——	Little		
14	33	27	33	22	SE	Ditto		
15	41	34	41	31	SW	Ditto		
16	40	32	43	27	E	Brisk		
17	38	25	39	16	NW	Ditto		
18	39	32	39	25	NE	Ditto	.13	
19	34	30	34	28	E	Ditto		
20	37	21	42	15	NE	Ditto		
21	33	29	34	22	E	Little		
22	36	28	40	25	——	Ditto		
23	30	24	30	22	NE	Brisk		
24	31	26	32	21	N	Little		
25	32	25	32	21	NE	Ditto		
26	29	24	31	20	——	Brisk		
27	34	—15	43	—12	N	Ditto		
28	30	22	30	20	——	Little		
29	30	24	30	20	NE	Ditto	.02	
30	32	27	32	27	——	Brisk		
31	32	27	35	25	——	Ditto		
	37·38	29·35	39·67	24·58			0.15	

Mean Pressure from the 3 daily observations 30°.163 inches
—— Temperature .....Ditto..... 34°.10
—— Dew Point ....Ditto..... 32°.48
—— Degree of Dryness.....Ditto..... 1°.62
—— Degree of Moisture....Ditto..... 931
—— Force of Vapour .....Ditto..... 0.216 inch.
Least observed degree of Dryness 759
Maximum Temperature in Shade ..... 51°
Minimum Temperature in ditto ..... 15°
Maximum Temperature in the Sun ..... 60°
Minimum of Terrestrial Radiation ..... 12°
Mean Temperature of External Air ..... 33°.36

WINDS.

North	3 days	N. East	10 days
East	7 ..	S. East	4 ..
South	0 ..	N. West....	1 ..
West	2 ..	S. West	4 ..

31 days.

Amount of Rain..... 0.15 inch.

Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1829; deduced from the Observations recorded in the preceding Journal.

1829. Months.	Pressure. Max.	Min.	Med.	Range of Barom.	Mean at Morn.	Noon.	Night.	Mean of the three Observations.	Temperature. In the Shade. Max.	Min.	Med.	Mean at Morn.	Noon.	Night	Mean of the three Observs	In Sun's Rays. Max.	Min.	Terrestrial Radiation Max.	Min.	Med. of Sun and Radn.
Jan. ..	30.405	29.088	29.823	1.317	29.821	29.813	29.833	29.822	49	17	32.8	31.9	36.1	32.6	33.5	63	30	33	9	33.1
Feb. ..	30.665	29.102	30.084	1.563	30.090	30.087	30.081	30.086	52	15	39.7	38.8	43.8	38.6	40.4	70	41	40	5	41.2
March	30.403	29.250	29.874	1.153	29.888	29.876	29.867	29.877	60	21	40.5	39.3	46.4	38.2	41.3	79	37	38	8	44.8
April .	30.158	28.978	29.571	1.180	29.560	29.567	29.593	29.573	61	29	46.0	44.9	51.4	43.2	46.5	82	44	44	19	49.5
May ..	30.441	29.582	30.060	0.859	30.061	30.046	30.066	30.060	80	38	55.6	53.6	65.2	51.5	56.8	101	72	48	29	62.0
June*.	30.418	29.420	30.051	0.998	30.059	30.045	30.045	30.049	84	37	60.5	58.2	69.2	56.5	61.3	110	67	57	26	67.0
July ..	30.224	29.281	29.818	0.943	29.812	29.805	29.824	29.813	78	42	61.3	61.0	67.6	57.1	61.9	104	64	57	34	66.2
Aug. .	30.250	29.254	29.892	0.996	29.893	29.891	29.891	29.891	81	40	60.1	59.2	66.7	56.2	60.7	103	56	55	33	64.8
Sept. .	30.257	29.151	29.771	1.106	29.765	29.777	29.768	29.770	70	34	55.2	53.2	61.7	51.3	55.4	94	58	54	25	60.3
Oct. ..	30.458	29.413	30.030	1.045	30.026	30.027	30.039	30.030	65	29	48.7	46.9	54.3	45.7	48.9	82	45	50	20	51.1
Nov. .	30.471	29.551	30.053	0.920	30.063	30.046	30.052	30.053	59	21	40.4	39.1	41.6	39.5	41.0	72	34	42	15	42.8
Dec...	30.656	29.683	30.168	0.973	30.169	30.149	30.171	30.163	51	15	33.3	33.2	35.9	33.1	34.1	60	30	38	12	32.1
Aver.	30.400	29.896	29.932	1.096	29.934	29.927	29.932	29.932	65.8	28.1	47.8	46.6	53.5	46.9	48.4	76.6	48.1	50.5	19.7	51.2

1829. Months.	Hygrometer indicating Dew Point. Mean Dew Point at Morn.	Noon.	Night.	Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness	Mean degree of Moisture.	Least degree of Moisture.	Scale of the Winds. N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	Rain. In.	Pts.
Jan. ..	30.8	33.5	31.7	32.0	0.216	1.5	964	787	4	11	8	2	1	1	1	3	31	0	30
Feb. ..	37.7	40.5	38.1	38.8	0.264	1.6	943	607	1	2	6	4	1	4	5	5	28	1	07
March	37.1	37.3	36.6	37.0	0.256	4.33	876	469	2	8	13	3	0	3	1	1	31	0	75
April	43.3	46.8	41.8	43.9	0.316	2.57	897	556	2	2	4	0	7	8	3	4	30	4	49
May ..	49.4	49.3	48.2	48.9	0.376	7.79	764	441	0	11	9	0	1	4	6	0	31	0	52
June*.	54.6	54.7	56.4	54.4	0.460	6.84	797	441	1	6	2	1	5	7	3	4	29	2	37
July .	59.5	61.2	56.4	59.0	0.543	2.88	941	520	3	4	1	2	6	9	5	1	31	5	23
Aug. .	57.4	60.6	55.3	57.8	0.508	2.95	907	592	1	3	0	0	8	4	8	7	31	4	07
Sept...	52.2	55.6	50.7	52.8	0.428	2.54	899	628	3	5	1	1	6	5	4	5	30	3	71
Oct. ..	45.7	49.1	44.8	46.5	0.352	2.41	936	660	4	6	3	0	2	5	5	6	31	1	60
Nov. .	38.2	41.4	39.1	39.6	0.272	1.45	931	632	4	7	2	3	4	4	3	3	30	1	86
Dec. ..	31.9	33.1	32.2	32.4	0.216	1.62	931	759	3	10	7	4	0	4	2	1	31	0	15
Aver.	44.8	46.9	44.27	45.25	0.350	2.637	799	591	28	75	56	20	41	58	46	40	364	26	12

* In June the Means are calculated from 29 days only.

Fig. 1

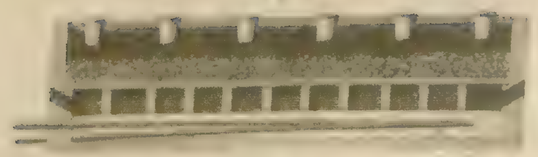


Fig. 2

Fig. 3

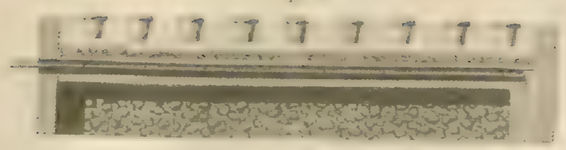


Fig. 4

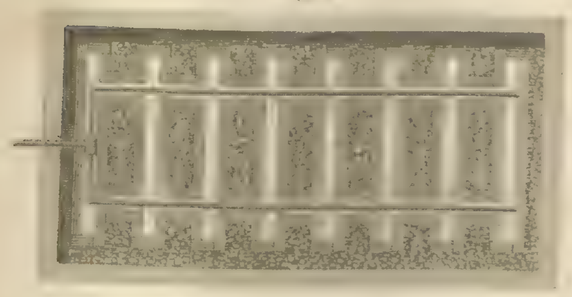


Fig. 5

Fig. 6

Fig. 7

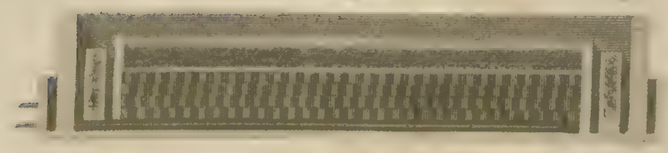


Fig. 8

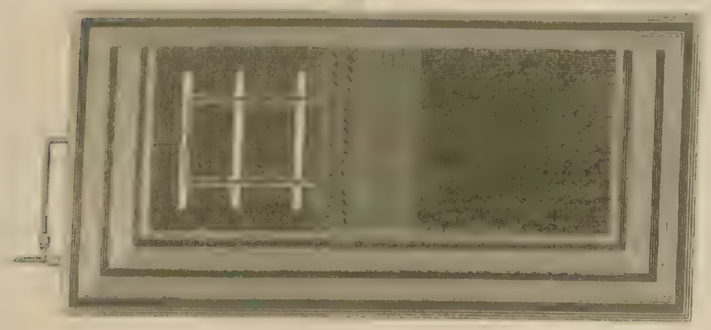


Fig. 9

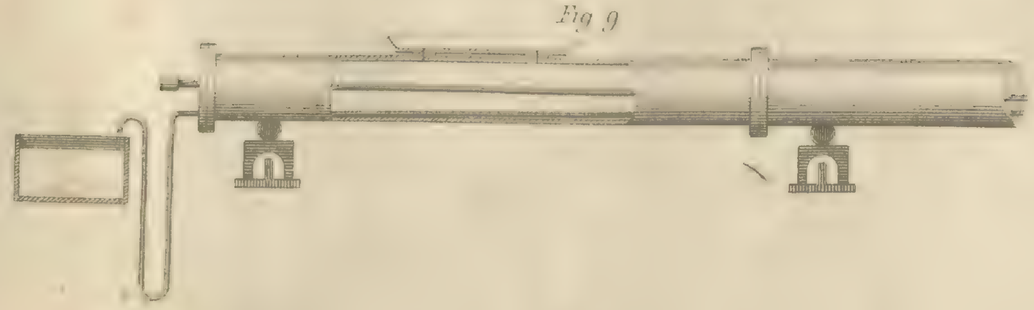


Fig. 10.

Fig. 11

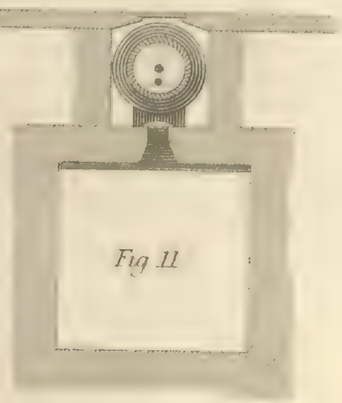
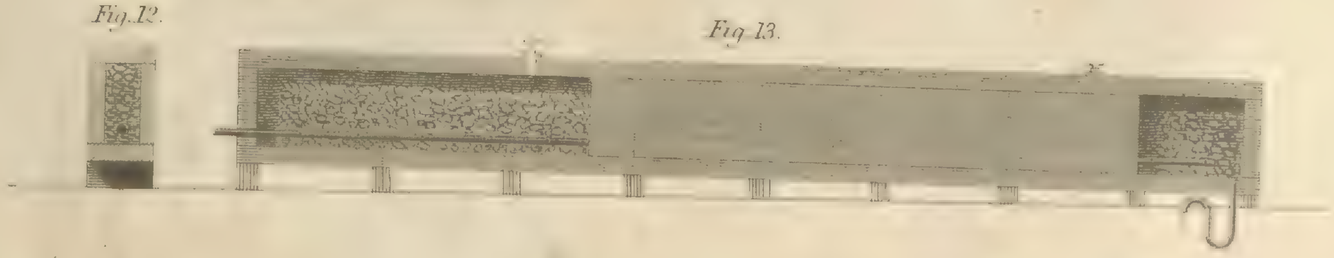


Fig. 12.

Fig. 13.



Scale of Feet for Figures 1.2.3.4.5.6.7.8.

Scale of Feet for Figures 9.10.11.12.13.

Mr. Stothert's Methods of Heating by Steam.

J.W. Lowry. sculp.

XXIX. *Description of various Modes of Heating by Steam, for Horticultural Purposes. By Mr.* Henry Stothert, *Civil Engineer, Bath.*

Read February 21, 1832.

The following are descriptions of methods which have been found to combine simplicity, cheapness and efficiency in a greater degree than any other modes with which I am acquainted, of applying steam and hot water to various buildings for garden purposes. At the request of several gentlemen who have adopted them, I take the liberty of submitting an account of them to the Horticultural Society.

For Pine Pits.

Fig. 1 and 2, Plate 7, represent a mode of obtaining bottom-heat, by means of a cistern of water heated by small steam-pipes, which are introduced near the bottom, leaving only sufficient drainage to take away the condensed water. The depth of water in the cistern is about one foot, which is warmed generally about twice a day by means of two one-inch steam-pipes, each going to the further end of the cistern, and returning again in the opposite direction, as shewn in the sketch; by this means the heat is very equally distributed. At each end of the cistern a small passage is left for the purpose of ascertaining the temperature of the water, and which will, if left open, admit considerable humidity to the house or pit. Across the cistern are laid joists, which support a paving of stone or brick, laid without mortar, on which is placed a bed of broken stones or bricks about one foot in thickness, which, towards the top are about the size commonly used for Macadamizing the public

roads, this is again covered with a bed of ashes, in which the pots are placed as in the usual way.

In lieu of the paving on the joists, boards, hurdles, or any other material capable of supporting the weight above is equally applicable. This mode has been in successful practice, nearly four years in the Garden of Mr. Sturge of Lambridge near Bath, who considers it greatly superior to the use of either dung, leaves, or tan, &c.; the temperature being at all times under the absolute control of the attendant.

This mode seems to have originated with Mr. Sturge, I having heard of no other person using it previously to his trying the experiment.

For Bulbs, Cacti, &c.

Fig 3 and 4, Plate 7, represent an elevation and plan exhibiting the mode in which bottom-heat is applied to stoves for bulbs, Cacti, &c. by the agency of steam. A paved water-tight bottom being built on stones, earth or any suitable support, with a declivity towards any convenient part of about one inch in ten feet to allow of drainage; channels are formed about three inches deep and the same width, crossing each other as shewn in Fig. 4, which also represents two small steam pipes, each three quarters of an inch in diameter closed at the farther end, and having perforations about one tenth of an inch diameter opposite each other, and in the middle of the channels. The result is that when steam is admitted into the pipes it is discharged in opposite directions, through the orifices, filling the whole space of the channels with hot vapour; the channels being covered with brick or stone jointed without mortar, as shewn in Fig. 3.; the vapour which percolates between the joints, is arrested by a bed of stones or broken bricks, similar to those used in Fig. 1. and about fourteen inches in depth above the paved bottom; on this again is placed a bed of sand about one foot deep, in which the pots are plunged to any suitable depth.

The vapour is so completely arrested by the strata of stones, &c. and sand, beneath the pots as to communicate a heat congenial with the health of the plants without the least excess of moisture.

For Melon Pits, &c.

Fig. 5, Plate 7, represents a mode of applying bottom-heat to a Melon Pit, adopted by Mr. Sturge of Bath. In this arrangement, a hollow chamber is formed over the bed of stones, &c. that cover the steam-pipes, the arrangement of the paved bottom, steam-pipes, channels, &c. being in all respects similar to that described in Fig. 3 and 4. Immediately over the bed of stones are laid joists, supporting a paved bottom jointed without mortar, on which is placed another bed of stones, &c. about eight inches thick, and on this the mould containing the plants.

The objects of this arrangement are first to obtain a perfect uniformity of temperature, and secondly, to prevent the possibility of any of the roots receiving injury from heat, should they accidentally strike through the mould into the bed of stones; both of which objects are perfectly attained.

Fig. 7 and 8 represent an elevation and plan of a Melon Pit erected for W. W. Salmon, Esq. at Devises, shewing also the mode of heating the atmosphere of the pit, (which will be explained hereafter) the arrangement of the steam-pipes, paved bottom channels for vapour, &c. are precisely the same as above described, but, in lieu of the bed of broken stones, &c., bricks are here placed edge-wise one over the other four deep, arranged in the same manner as for burning a kiln, over which is laid a flat cover jointed close without mortar, and on this the mould containing the plants.

For Aquatic Plants.

Fig. 6, Plate 7, shews a mode of warming a cistern or reservoir of water for the preservation of Aquatic Plants, as erected at Mr.

Miller's Nursery at Clifton, in front of one of the green-houses and having a glass roof. Steam is admitted by a pipe three quarters of an inch diameter, having perforations of about one tenth of an inch at each foot in length, the extremity of the pipe being closed, and it issues through the small apertures, filling the whole internal area of the large pipe in which it is enclosed, imparting an equable temperature to the whole extent of surface; an effect which cannot be obtained by applying steam in the common way, when but a small increase of temperature is required: as the water immediately in contact with the pipe where the steam is admitted would absorb nearly the whole of its heat, till it arrived at a temperature far beyond what could be allowed in a case of this kind. The dimensions of the reservoir alluded to, are about three feet by three feet six inches, and twenty feet long. The external pipe four inches inside diameter, the condensed water from which is taken away by a small syphon at the farther end.

Heating the Atmosphere for Conservatories, Hothouses, &c.

Fig. 9, 10, and 11, Plate 7, represent a mode of heating water in pipes by the agency of steam.

It is well known that by the common hot-water apparatus, the heating of an extensive and unconnected establishment of houses by one fire is impracticable in most cases, but in the mode here represented the extent of application is in a manner unlimited, whatever be the number or situation of the houses requiring heat. It likewise combines all the advantages of steam as a conductor of heat with that of a bulk of water as a retainer.

The first adoption of this mode (which the writer is aware of) was in a forcing house belonging to Mr. Sturge near Bath. The water-pipes are eight feet in diameter, and about twenty-eight feet long. The steam-pipe of one inch diameter entering at the centre of one end, and proceeding in rather an inclined direction to the

other, is then returned, still inclining, and passed out at the bottom of the bore immediately under the place where it entered; it is then formed into a syphon about three feet deep, from whence the condensed water is conveyed away. A smaller pipe is also connected with the top of the large one, to receive the increase of water by expansion when heated, which, as the large pipe cools, returns into it again. Its success, in this instance, led to its adoption in many other situations, more especially in an elegant iron conservatory belonging to the Marquess of AYLESBURY, at Tottenham Park, forming nearly one-fifth of a circumference of a circle whose radius at the front is ninety feet, the extent of which is 105 feet, and the width twenty-four feet, the whole front and roof being glazed.

Fig. 11 shews the arrangement of the front pipes under the floor. The air being admitted from the air-chamber underneath, through an opening extending the whole length of the pipes, and passing through the upper chamber on each side of the pipes, is discharged through the grating into the house. The arrangement of the back pipes is similar.

Shallow cisterns are connected with the upper part of the pipes, about eighteen feet from each other, by means of hollow screws, which admit the water to pass to and fro reciprocally; the capacity of the cistern is more than sufficient to receive the increased bulk of the water which expands when heated, and returns again into the pipes as the water cools.

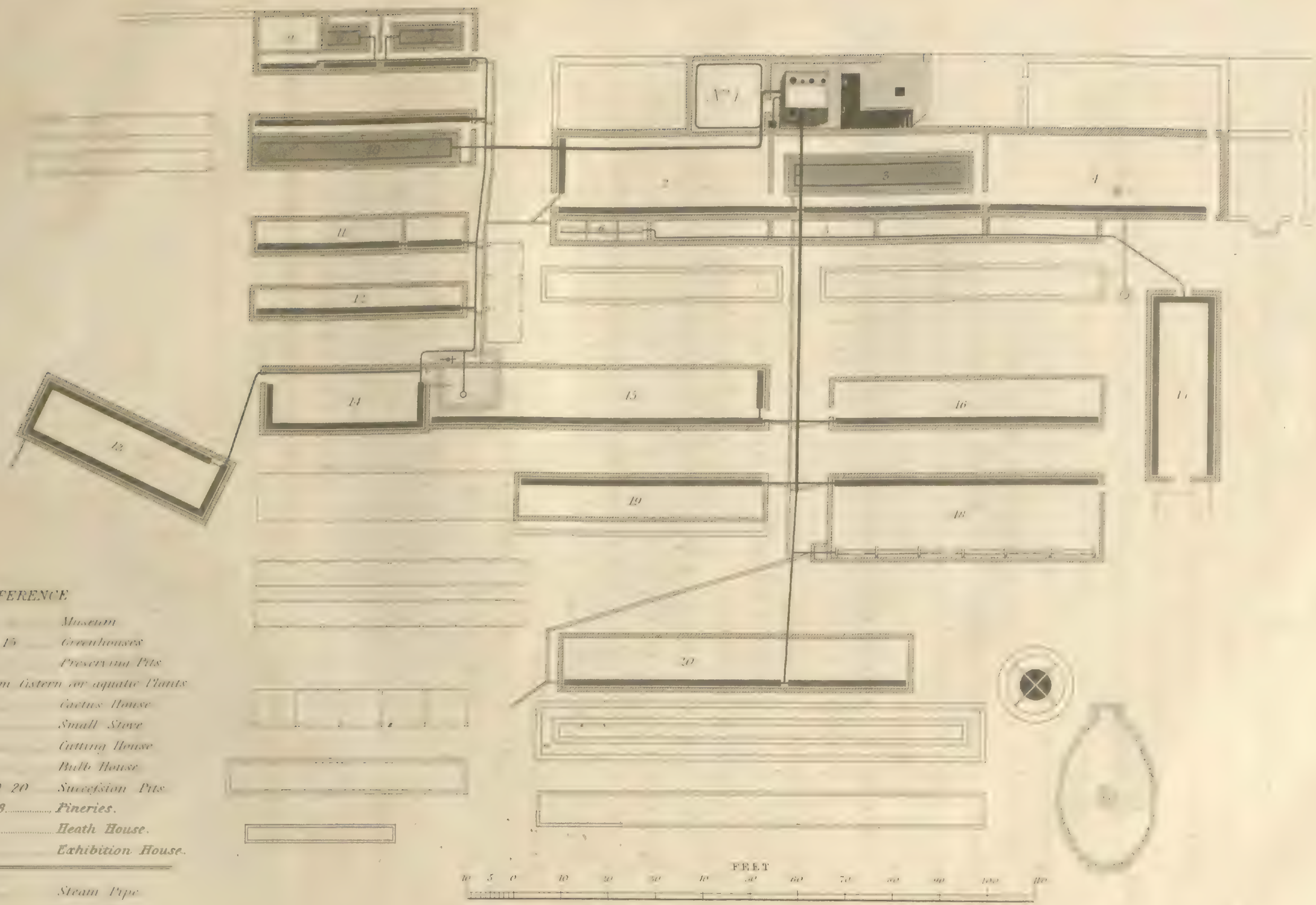
The external diameter of the front pipes in this instance is thirteen inches, and of the back pipes ten inches and a half; each set of pipes is divided in the middle of their length, except that the nearest division of the front pipes returns about half way round, the end being in length rather more than sixty feet. These have one and a quarter inch steam pipes, extending the whole length, and returning again, preserving a regular inclination throughout their whole length.

The back pipes have steam pipes of one inch diameter passing through them in a similar way, and the feeding pipes are so arranged that either division of the pipes may be heated separately, or in conjunction with the rest. Another advantage attending this mode of applying heat is, that as no returning pipes are necessary as in the common hot-water apparatus, the bulk of water is doubled with the same extent of heating the surface, and the retaining power of the apparatus doubled accordingly.

The cisterns are farther serviceable for regulating the humidity of the house, which can be done with the greatest accuracy by attending to the covers.

Mode of heating the atmosphere of Conservatories, Hot-houses, &c. by Steam discharged into cases of masonry or brick-work.

Fig. 12 and 13, Plate 7, represent a mode of heating, by introducing steam into cases of stone or brick-work, filled with rubble stones, or pieces of broken brick. This mode is equally applicable to the largest or smallest establishments. The agent being steam, it possesses the same facility of application as steam applied to hot-water pipes, consequently the same advantages, and may be adopted in conjunction with it or not, as may be thought desirable. Fig. 12 represents a cross section to scale, of a case of masonry, or brick-work, suitable for a Green-house of fourteen feet wide, with glazed roof, and two feet 6 inches high of glass in front. Fig. 13 shews a side view of the same, with part of the front taken away at each end to shew the inside. The steam pipes being placed about four inches above the bottom, and having perforations of about one-tenth of an inch in diameter, which vary from fifteen to eighteen inches asunder throughout its whole length, but become more frequent at the farther end, which is closed. The general direction of the holes is upwards, except some few in the bottom, to keep the pipe clear of condensed water. The case being built inclining towards the most



Plan of the Steam Apparatus in the Nursery of Mr. Miller, at Clifton, near Bristol.

convenient spot for draining, the condensed water is taken away by a small syphon, about three or four inches deep, as shewn in the end of Fig. 13. A steam pipe of one inch diameter is sufficient for a case of fifty feet in length, and if proper attention be paid to the dimensions and distance of the holes, which in this case need not be above one-sixth closer at the farther end than at the commencement, scarcely the least difference of temperature will be perceptible at each end of the case, an effect utterly unattainable in the best constructed fire-flue, which, in appearance, it so much resembles. There is, however, no particular proportion of the height to the breadth, that depending entirely on convenience.

Where free-stone cases are used, it is found necessary that they should receive two or three coats of linseed oil, to prevent the escape of steam through them. It is better to give moisture to the house by steam-cocks fixed at the top of the cases, as shewn in the drawing, as humidity can then be regulated at pleasure.

This mode of heating is extensively applied at Mr. MILLER's Nursery, Clifton, where the atmosphere of seventeen houses, containing upwards of 12,000 superficial feet of glass are heated by it. A Plan, Plate 8, shewing the dimensions and position of the houses is annexed, describing also the position of the cases, and likewise those beds that receive bottom heat in the manner described at Fig. 3 and 4, and the cistern for aquatic plants at Fig. 6.

In conclusion, I beg to state that the principles upon which we are induced by daily experience to calculate the size of boilers are as follows :

1. For forcing houses under ordinary circumstances, we find that one square foot of bottom surface of boiler is equivalent to 150 square feet of glass.

2. Where bottom-heat is required, one square foot to 135 feet of glass.

3. For Green-houses, one square foot is equal to 200 feet.

N. B. Houses that are ill glazed, or placed in an exposed situation, may require an addition of ten or fifteen per cent to the proportionate surface of the boiler.

The surface of the fire-grating should be from one-fourth to one-fifth of the bottom surface of the boiler, according to the strength of the fuel employed.

Mr. Miller's boilers present a bottom surface of about thirty-three feet each, being nine feet long, by three feet seven inches wide. The fire-grating is two feet four inches wide by three feet long. These two fire-places are found effective in the severest weather.

XXX. *Note on the Sowing and Cultivation of the Sheeraz Tobacco.* *By* Dr. Riach, *of the Honourable East India Company's Medical Service.*

Read February 7, 1832.

In December, which is about the middle of winter here the seed is sown in a dark soil, which has been slightly manured; red clayey soil does not do. To protect the seed, and to keep it warm, the ground is covered with light thorny bushes, which are removed when the plants are three or four inches high; and, during this period, the plants are watered every four or five days, only however, in the event of sufficient rain to keep the soil well moistened not falling. The ground must be kept wet until the plants are six or eight inches high, when they are transplanted into a well-moistened soil which has been made into trenches for them; the plants being put on the tops of the ridges, ten or twelve inches apart, while the trenched plots are made so as to retain the water given. The day they are transplanted, water must be given to them, and also every five or six days subsequently, unless rain enough falls to render this unnecessary.

When the plants have become two and a half to three and a quarter feet high, the leaves will be from eight to fifteen inches long. At this period, or when the flowers are forming, all the flower-buds are pinched, or twisted off. After this operation, (the watering being continued, and irrigation is the system universally employed throughout) the leaves increase in size and thickness until the month of August or September, when each plant is cut off close to the root, and again stuck firmly into the ground. At

this season of the year heavy dews fall at night; while exposed to these, the colour of the leaves changes from green to the desired yellow. During this stage, of course, no water is given to the soil. When the leaves are sufficiently yellow, the plants are taken from the earth, early in the morning, and while they are yet wet with the dew, and heaped on each other in a high kupper-house (a shed, the walls, &c. of which are made with light thorny bushes, or the like,) where they are freely exposed to the wind. While there, and generally in four or five days, those leaves, which were still green, become of the desired pale yellow colour. The stalks, and centre rib of each leaf are now removed, and thrown away. The leaves are again heaped together in the drying-house for three or four days more, when they are in a fit state for packing. For this operation the leaves are carefully spread on each other, and formed into a sort of cakes, four to five feet in circumference, and three or four inches thick, great care being taken not to break or injure the leaves. Bags made of strong cloth, but thin, and very open at the sides, are filled with these cakes, which are pressed very strongly down on each other; the leaves would be broken if this were not attended to. When the bags are filled, they are placed separately in the drying-house, and turned daily, until they are to be sent away, when a second bag like the first is sometimes put on.

If the leaves be so dry that there would be a risk of their breaking during the operation of packing, a very light sprinkling of water is given them to enable them to withstand it without injury. The leaf is valued for being thick, tough, and of a uniform light yellow colour, and of an agreeable aromatic smell.

In the vicinity of Sheeraz, November and December are cool; January and February more so; these may be considered the winter months. In December and January snow falls not unfrequently; the hills are covered with it for some months, but it seldom lies any considerable time in the plains. March and April may be

considered the spring (though then, the sun, during several hours of the day, is extrêmely powerful); and the remaining months, till November again, as the very hot summer and warm autumn of these parts.

The crops of wheat are generally cut down in July, or even so late as August.

Sheeraz,
7th April, 1831.

XXXI. *Upon the Cultivation of Tobacco, for Garden purposes. By Mr.* John Wilson, *Under Gardener at the Society's Garden, at Chiswick.*

Read March 6, 1832.

Tobacco is an article which is indispensable to horticultural purposes. It is used to fumigate hot-houses; large infusions of it are put in most washes that are prepared for extirpating insects; and by drying, and grinding it into the form of snuff, it is found very efficacious in destroying the green fly on peach trees out of doors.

Its management is not generally understood in England. In most gardens, the leaves are stripped off the plants in a green state, and thrown together in a heap to ferment; in general, little or no attention is paid to the degree of temperature which such fermentation should reach, and the usual consequence is, burning or rotting the leaves. Tobacco so treated, has neither taste nor smell of Tobacco, and when burnt in hot-houses, is by no means effective in killing insects, without a great proportion of regularly cured and manufactured Tobacco being burnt along with it. Hot-houses also smell very disagreeably for eight or ten days after being fumigated with it.

In Ireland, where Tobacco has of late years become an article of field cultivation, the principle of fermentation has also been adopted; but it appears not likely to be attended with the success that was at first anticipated. A paragraph which appeared in a Morning Paper a short time back, went to show, that Tobacco is very much reduced and wasted in Ireland by curing, and that the leaves become as thin as silk: to remedy this evil, the writer of the para-

graph referred to, suggests the propriety of cultivating Nicotiana rustica in that country, in preference to finer varieties.

Mr. Brodigan's mode of curing as detailed by him, in his Work upon the Growing and Curing of Tobacco in Ireland, has been tried in the Garden, and it was found that the leaves began to suffer from heat, at many degrees below the maximum temperature mentioned by Mr. Brodigan, which is 126°. This is an extreme, which it is to be presumed, will readily account for the great waste of Tobacco during the curing process in Ireland. Taking off four or five of the bottom leaves of each plant, suffering them to lie on the ground for some time, gathering and carrying them home to a barn, fermenting them two or three times, spreading out as often to cool, and finally hanging them on lines of pack-thread to dry; all which has to be repeated when a few more of the lower leaves are considered ripe, must also be attended with very great labour and expense.

The principle of fermenting Tobacco in a green state is sanctioned by a long course of practice; but from every observation of its effects, which has been made here, it seems to be productive of the worst of consequences; for it is dependent upon conditions, so difficult to govern, that notwithstanding the greatest care, it never fails to be injurious to the tender leaves.

The sort which is grown here for the purpose of fumigation, &c. is a very large leaved variety of Virginian Tobacco, which was obtained from the Sandwich Islands: it is the best which has yet been received at the Garden.

In the last season it was managed in the following manner. The seeds were sown about the middle of March, covered very lightly with fine loam, and placed upon a moderate hot-bed. When the plants were come up, and had acquired sufficient strength, they were pricked into shallow pans, about two inches apart; they were then gradually inured to the open air on good days, and finally

planted out in the middle of May, at three feet apart in rich ground; they were shaded with flower-pots, and occasionally watered till they had taken root, and began to grow. No more attention was bestowed, except keeping the ground clean, until their lateral shoots began to show themselves, which were constantly kept pinched off as they appeared; these, if suffered to remain, would have had the effect of very much reducing the supply of sap from the useful leaves of the plants; they were topped at sixteen or eighteen leaves, according to their strength. The Tobacco was ripe in the beginning of September, as was indicated by the leaves becoming mottled with yellow spots, those at the bottom, more so than at the top of the plant; they were also more glossy and shining than before.

The Mushroom house, being at this time disengaged, was thought an eligible place for the curing process; the plants were taken up quite dry, with a few of their roots; but no particular attention was paid to saving many of the latter, as the object was only to avoid breaking the bottom-leaves, (which might have been the case by cutting the stems); the plants were carried immediately to the house, and hung on nails in the walls, and on ropes in the middle of it. When all had been brought into the house, it was shut up quite close, the fire lighted and the temperature kept to 70 degrees, until the leaves got completely yellow, which they did in four or five days. The heat was then raised to 75°, and in about a week, the leaves, with the exception of the mid-ribs, were cured, and of a fine brown colour. The heat was then increased to between 80 and 90 degrees, and in five days the mid-ribs were so completely killed that the thick ends of them would have broken immediately on attempting to bend them: the leaves were now very much curled, and dry as fire could make them, and if subjected to any pressure, would have crumbled to snuff. Fire was discontinued, and the floor of the house well watered; this was repeated as it evaporated, and in

twenty-four hours the leaves were as soft and pliable as could be desired; they could now be handled without breaking or wasting them. When stripped off the stalks, they were stretched out singly and laid above one another, smoothing them gently with the hands; when all were laid out neatly, they were well pressed, to give them form, and keep them smooth; they were then tied in *hands* of about half a dozen leaves in each, and packed into a tub, being well pressed as they were put in. In this way they remained a fortnight, when they began to mould slightly at the mid-ribs, in consequence of the weather being moist and warm; they were then rehung in the house, and very gradually dried by fire-heat, were afterwards brought to a moist state, in the manner above described, and finally were repacked in the tub, where they now remain, well pressed, and in a good keeping state. The Tobacco continues to improve in smell and appearance with its age.

There can be no doubt that this Tobacco is as good (unless in respect of age) as much of that which is imported from America; it has yielded in the proportion of 2420lbs. to an acre, being half a pound to every plant, each occupying three square feet.

The important points in the above mode of curing are, to carry the plants to the house whenever they are taken up, for if the sun be bright, the leaves would sun-burn in a short time; the leaves require to be yellow before the heat is increased, otherwise the Tobacco would cure too light coloured; and the mid-ribs must be completely killed before the leaves are taken off the stalks, for if not once made very dry, they would never keep.

The power which the leaves possess of absorbing moisture, in a damp atmosphere, is immense, and very curious; a person unacquainted with it, would not believe, on seeing a leaf in its driest state, that it could ever be brought back so as to be again pliable.

The number of leaves that each plant ought to be allowed to produce, should be determined by the quality of the ground, the

earliness, or lateness of the season, &c.; when these combine to the advantage of the plants, they are able to perfect proportionally more leaves. By a timely and careful attention to such circumstances, and by pinching off the lateral shoots, the climate of England or that of Ireland, is in every respect sufficient to the full perfection of Tobacco. Four months are not fully required to bring it to maturity.

In the case of large plantations being made, shading would be attended with considerable expense: it is not, however, of absolute necessity; for when Tobacco plants are pricked out sometime previous to planting, they make good roots, which are of greater benefit to them after they are planted, than shading is; the latter, however, is practised in England and in Ireland, and is certainly useful; but it is by no means an essentially necessary part of the management of Tobacco: the leaves flag under a hot sun; but, if the ground is moist, quickly recover. When the danger of late frosts is over, it would seem best to commence planting; if, however, from apprehensions of any description, the Tobacco is not got out till the latter end of May, (and it need never be so late,) even at that time there could be no danger of its ripening. Planting in Ireland, is continued considerably later than this.

The mode of curing now described, or one very similar to it, would seem to remedy the defects complained of in Ireland:—namely, the great waste of the article by repeated fermentations; to this mode no such objection can be found, and if adopted in Ireland, it would be incomparably less labour and expense, than the present mode of management in that country.

The Irish planter would, however, require a firing house, in addition to the barn, or shed, spoken of by Mr. Brodigan; it could be of any dimensions: a short wide firing house, would be best adapted for the purpose, with a flue running along the centre; a very small house would cure an amazing quantity of plants, for

when they are taken up, their leaves begin to fall almost immediately, and lie upon the stalks, and when they get to the brown colour, do not occupy much more room than the stalk itself. The plants could first be hung in the open shed, where rain and sun ought to be kept off; in this shed, the leaves would come to the yellow state before-mentioned, when they might be removed to the firing house.

XXXII. *Upon Grafting the Walnut Tree. By* Thomas Andrew Knight, *Esq. F. R. S. President.*

Read April 17, 1832.

The Walnut Tree appears hitherto to have effectually baffled, under all ordinary circumstances, the art of the grafter. The inserted scions wither, and die, without apparently making any effort to unite themselves to the stock, or to draw nutriment from it; and consequently the value of every superior variety has been limited by its use to the possessor of the original seedling tree. It is true that a part of the seedling offspring of every fine variety generally inherits a portion of its good qualities; but I have found it extremely difficult to obtain from seed good varieties of sufficiently early habits to ripen well in this vicinity, except in very warm seasons; and I doubt much whether the value of the crop of Walnuts, throughout the British Islands, be one-third as great as it would be if proper varieties were every where planted.

It must, however, be admitted, that ungrafted seedling plants usually afford the finest trees: but if the grafts be taken from young seedling trees, or from scions which have sprung out of the trunks, or large branches, of trees of greater age, and those be varieties of luxuriant and healthy growth, the vigour and durability of the future tree will not be much diminished. The more early production of fruit, by grafted trees, will necessarily, to some extent, impede their growth; because a portion of their sap must be expended in giving nourishment to such fruit: but the largest Pear trees, which I have ever seen, must have sprung from grafts taken from trees of considerable age. One of these, which grows upon an estate that belongs

to me, a Barland Pear tree (an old variety now nearly expended) has been known to afford, in the same season, two hundred and seventy-five gallons of perry.

The Walnut tree may be propagated, with more success, by budding. I have succeeded tolerably well in some seasons, and in one season perfectly well; but in several others not a single inserted bud has been found alive in the following year; though all had been inserted with the greatest care.

I therefore communicate the following mode of grafting the Walnut tree, which I found in the last season most perfectly successful under many unfavourable circumstances; and which mode, for reasons which I shall proceed to state, will, I believe, point out the means of propagating some other species of trees with facility, which have not hitherto been so propagated without difficulty and uncertainty.

The fluid, which the seeds of the Walnut tree contain, when that is fully prepared to germinate in the spring; and which was deposited within it for the purpose of affording nutriment to the seminal buds, or plumule, in the preceding autumn, is sweet, as in a great many other kinds of seeds: but during germination this becomes, in the seed of the Walnut tree, bitter and acrid. Similar changes take place in the sap which is deposited, for analogous purposes, in the bark and wood of the Walnut tree, during the germination of its buds; and I was led by the discoveries of M. Dutrochet to infer the probability, that the sap during, and subsequent to, its chemical changes, might acquire new and more extensive vital powers. I therefore resolved to suffer the buds of my grafts, and those of the stocks, to which I proposed to apply them, to unfold, and to grow during a week or ten days; then to destroy all the young shoots and foliage, and to graft at a subsequent period. A very severe frost in the morning of the 7th of May saved me the trouble of destroying the young shoots; but it deranged my expe-

riment by killing much of the slender annual wood, which I proposed to use for grafts; so that I found some difficulty in choosing proper grafts. The swelling of the small, and previously almost invisible, buds, within a few days, enabled me to distinguish the living wood from that which had been killed by the frost, and the stocks were grafted upon the 18th day of May. My grafter had more than once been previously employed by me to graft Walnut trees in various ways, and never having in any degree succeeded, he did not seem at all pleased with the task assigned him, and very confidently foretold that every graft would die: and I subsequently found that he had insured, to some extent, the truth of his prophesy, by having applied grafts which were actually dead. The whole number employed was twenty-eight, and out of these twenty-two grew well; generally very vigourously, many producing shoots of nearly a yard long, and of very great strength; and the length of the longest shoot exceeding a yard and five inches. The grafts were attached to the young (annual) wood of stocks, which were between five and eight feet high; and in all cases they were placed to stand astride the stocks, one division being in some instances introduced between the bark and the wood; and both divisions being, in others, fitted to the wood or bark in the ordinary way. Both modes of operating were equally successful. In each of these methods of grafting it is advantageous to pare away almost all the wood of both the divisions of the grafts; and therefore the wide dimensions of the medulla in the young shoots of the Walnut tree do not present any inconvenience to the grafter.

No difficulties will henceforth, I conclude, occur in propagating varieties of Walnuts by grafting, and I am much inclined to believe, that different species, and varieties of oaks, may be successfully grafted by the same mode of management.

The art of grafting our common fruit trees has been so long, and so extensively practised, that it may reasonably be supposed to be,

at this late period, incapable of much improvement. But, nevertheless, I am much inclined to believe, that a good deal is still to be learned: and it would not afford matter of much astonishment to me, if it should be proved that branches provided with blossom buds might be transferred with success from one side of the Atlantic to the other, to afford fruit in the following season. The results of some experiments, which I made in the last winter, and present spring, induce me to think this practicable, though I am not yet prepared to decide that it is so.

XXXIII. *A Report upon the best Varieties of the Gooseberry, cultivated in the Garden of the Horticultural Society, at Chiswick.*

By Mr. Robert Thompson, *Under Gardener in the Fruit Department.*

The principal part of this Paper was read before the Horticultural Society so long since as January, 1827. At that time it was intended to publish, in the Transactions, descriptions of all the Gooseberries that were cultivated in the Society's Garden. Various causes have however delayed the appearance of the Paper till the present time; and, in consequence of the recent publication of the Descriptive Catalogue of the fruit trees cultivated by the Society, it is no longer desirable that so extensive an undertaking as a detailed description of every variety should be accomplished.

I therefore propose on the present occasion to admit only what may be considered first-rate kinds, referring the reader to the Catalogue itself for particulars relating to the second-rate, or inferior sorts.

Even such as still remain are more numerous than any private individual is likely to cultivate; it will, however, now be easy for any one to make such a selection as may suit his taste or objects; without running the risk of procuring second-rate kinds.

To the descriptions I have thought it useful to prefix a few general observations upon the characters by which the races of Gooseberries are more particularly distinguished, and upon the sub-divisions which may be employed for forming the whole of the varieties into smaller sections, in order to facilitate their study.

Those who wish for information relating to the weights that the

larger, or Lancashire kinds have attained, will find it in a table published in the Guide to the Orchard and Kitchen Garden.

Although it is undoubtedly true that some objections may be taken to the separation of the varieties into two races, the Old English and the Lancashire, yet, as the quality and general appearance of the small kinds of Gooseberries are considerably different from that of the large sorts, which have been raised chiefly in Lancashire, and the adjoining counties, it has, nevertheless, been found advantageous to consider them as different races.

Class 1*st. The Small sorts of Gooseberries*, consisting of such kinds as are known in many parts of the kingdom by the appellation of Old English Gooseberries. The fruit, though small, is generally well flavoured, its form approaching to globular, or roundish oblong; the habit of the bush is for the most part erect; the shoots being of a firm growth, with less tendency to become pendulous than those of the other class, in which this property seems to be the consequence of a more luxuriant habit.

In the reproduction from seed, the quality of the fruit is often improved without any considerable alteration in its size. This may be supposed to take place when vegetation, in a good exposure is promoted by only moderate excitement, and it is probable that under such, or a repetition of similar circumstances, the sorts belonging to this class have originated.

Class 2nd. Lancashire Gooseberries. These, as above-mentioned, are all large sorts, being chiefly produced in those counties where the success of competition depends on the *size* of the fruit, more than on its flavour. It therefore becomes a principal character in this class to have the fruit large; the branches though sometimes erect, are in general pendulous; the shoots are often very luxuriant, and the leaves, compared with the generality of the other class, large.

Adhering to this character of size, it will be found that I have placed in my first class, some of the kinds which commonly appear in the lists of Lancashire Gooseberries, and this has been done wherever I have found the variety failing to produce berries of such magnitude as would entitle them to the character of shew fruits.

Four principal Divisions are derived from the colour of the fruit, and agree with those which are usually made in the Catalogues of Nurserymen and Gooseberry growers.

Division 1*st. Fruit Red.* This Division is perhaps more extensive than any of the others, and it is certainly the most distinct, as there is no difficulty in determining the sorts that belong to it.

There is in some Catalogues a Division of Black Gooseberries. These are, however, from their close affinity to the Red, included amongst them. There are many of the brighter Reds which become blackish when very ripe, and it is almost unnecessary to observe that the fruits of the whole of this Division have a tendency to become darker the longer they remain on the bush. Such varieties as are particularly dark at the time of their ripening, or which turn so after, will be specially pointed out in the Descriptions. This Division includes many excellent varieties, some of which have a peculiar richness in flavour, with more of a vinous quality than those of the others. The fruit of this Division has attained a considerably larger size than the others, as appears from a comparison of the average weight to which the Prize Gooseberries of the different colours have been grown.

Division 2nd. Fruit Yellow. Some of the sorts in this Division are very abundant bearers, but the fruit has not the property of remaining long on the bush after it is ripe. The flavour in general is more sweet than rich: in many of the larger sorts it is rather coarse, especially in those which have a dull greenish tinge. It is not difficult to decide what varieties ought to form this Division.

Division 3rd. Fruit Green. This Division is perhaps more extensive than the Yellow or White, but contains fewer varieties than the Red. In some, both of the large and small sorts in which the pulp itself is of a dull green colour, the flavour is coarse and disagreeable: but in the sorts which have a thin skin, with a clear juicy pulp it is generally pleasant, sweet and moderately rich.

Division 4th. Fruit White. Although it is allowed that, strictly speaking, there are no White Gooseberries, yet, as there is a considerable number of the palest Green varieties, which have generally received that name, this Division has been retained. The Divisions of Green and White gradually merge together, insomuch that it is difficult to mark the distinction between them. It will therefore be necessary, in regard to the doubtful varieties, to endeavour to give some explanation why some of them are accounted Green, and why others approaching near to them, are placed amongst the Whites.

When the fruit is of an uniform pale green, with veins of nearly the same colour, it is then included amongst the Greens: as are also those in which the veins are large and rather pale, but the rest of the skin deep green. When the veins are large, and very pale, and the rest of the skin moderately so, the variety, in that case, is ranked amongst the Whites, because the colour of the veins predominates so as to give the fruit a whitish appearance.

There are some of the Whites very clear and transparent, admitting of the seeds being distinctly visible through the skin and pulp. Others acquire a yellowish cast when fully ripe, but are still very distinct from the yellows, whilst they are also farther removed from the Greens. The flavour of such varieties is generally rich.

It appears that, hitherto, the classification of Gooseberries has only extended to the above Divisions, according to the colours. The surface of the fruit affords three sub-divisions, from its being either *Hispid*, *Downy* or *Smooth*.

These characters, it is presumed may be used with propriety, in forming sub-divisions: for there is in many respects as much importance attached to them as to the colours, being frequently conjoined with the latter in constituting the name, or distinguishing appellation of many varieties.

Sub-division 1*st*. *Surface Hispid.* This sub-division is in general sufficiently obvious. It may, however, be observed that hispidity exists in very different degrees, being in some very thick, in others but sparingly scattered: in the latter case some of the fruit will occasionally be found entirely smooth. In some, the fruit is very hispid near the base, but nearly smooth at the other end. The hispidity is also coarse and bristly in some, but in others slender. It will either be found intermixed with fine short down, or produced upon a smooth glossy surface.

Sub-division 2*nd*. *Surface Downy.* Although this has not been applied as a characteristic appellation for varieties, yet it is so conspicuous in many, as to render it a mark of distinction which must have been attended to. It was observed above, that *down* is often found on varieties that are also hispid, but those only are included in this sub-division which are downy without hispidity. It includes very few of the Red Division, but applies to a considerable number of the other colours, and particularly to the White.

Sub-division 3*rd*. *Surface Smooth.* Some exceptions may be made to the constancy of this character in a few varieties. A slight hispidity will occasionally occur on some of the fruit where the generality of those on the same bush are quite smooth. In some varieties included in this sub-division, the surface will be found very minutely downy, but being almost imperceptibly so, those are arranged amongst the Smooth Gooseberries.

The form of the Berries affords two Sections.

Section* 1*st*. *Figure round.

***Section* 2*nd*. *Figure oblong*.**

There are few varieties to which the first of these is applicable, particularly among the large sorts of Gooseberries.

The Second includes all the varieties which are *not round*. Such therefore as are ovate, belong to it; for these varieties often vary to *oblong*, which form is, on that account adopted as characteristic.

The whole are thus divided into *Two Races*, each of which may be separated into *Four Divisions*, and these each into *Three Subdivisions*, which are capable of being further divided into *Two Sections*, making in all *Forty-eight Groups*.

If in the tables which precede the descriptions, some sections are observed to be without kinds belonging to them, this is principally owing to the smallness of the number of the varieties which are found with round fruit, especially in the class of Large, or Lancashire Gooseberries, and to none but those of first rate excellence forming the subject of this Communication.

Race 1. Small, or Old English Gooseberries.

Analytical Table.

1. Fruit Red.

A. Surface hispid.

a. Figure round.

1. Rough Red.
2. Barton's Hairy Red.
3. Small Red Globe.
4. Small Dark Rough Red.
5. Scotch best Jam.

b. Figure oblong.

6. Red Champagne.
7. Red Mogul.
8. Keens' Seedling.

9. Raspberry.
10. Red Warrington.
11. Beaumont's Red.

B. Surface Downy.

a. Figure round.

None of first-rate quality.

b. Figure oblong.

12. Miss Bold.

C. Surface Smooth.

a. Figure round.

None of first-rate quality.

b. Figure oblong.

13. Red Turkey.

2. Fruit Yellow.

A. Surface hispid.

a. Figure round.

14. Sulphur.

b. Figure oblong.

15. Yellow Champagne.
16. Early Sulphur.
17. Hebburn Yellow Aston.

B. Surface Downy.

a. Figure round.

None of first-rate quality.

b. Figure oblong.

18. Rumbullion.

C. Surface Smooth.

a. Figure round.

19. Amber.
20. Yellow Ball.

b. Figure oblong.

None of first-rate quality.

3. Fruit Green.

A. Surface hispid.

a. Figure round.

21. Early Green Hairy.
22. Hebburn Green Prolific.

b. Figure oblong

23. Glenton Green.
24. Green Seedling.

B. Surface Downy.

a. Figure round.

25. Late Green.

b. Figure oblong.

None of first-rate quality.

C. Surface Smooth.

a. Figure round.

26. Sabine's Green.
27. Pitmaston Green Gage.

b. Figure oblong.

28. Green Walnut.
29. Allen's Glory of Ratcliff.

4. Fruit White.

A. Surface hispid.

a. Figure round.

30. Hedgehog.
31. White Chrystal.
32. White Champagne.

b. Figure oblong.

None of first-rate quality.

B. Surface Downy.

a. Figure round.

None of first-rate quality.

b. Figure oblong.

33. Early White.

C. Surface smooth.

a. Figure round.

34. Chrystal.

35. White Damson.

b. Figure oblong.

36. White Honey.

Description of the foregoing Varieties.

Division 1. Fruit Red.

1. *Rough Red.* (Cat.* No. 265.)

Branches spreading, rather upright. Fruit early, small and roundish. Skin very hairy, dark red and rather thick. Flavour good.

An abundant bearer. Known in Norfolk as the Rough Red, in other places as the Little Red Hairy; from Scotland it has been received under the names of Old Scotch Red, and Thick Skinned Red. It is particularly esteemed for its excellence in preserving, and making Jam.

2. *Barton's Hairy Red.* (Cat. No. 147.)

Branches erect. Leaves abundant and dark green. Fruit middling early, small and round. Skin slightly hairy, red and thick. Flavour sharp and good.

An excellent bearer. From Messrs. Backhouse of York.

* Catalogue of the Fruits cultivated in the Garden of the Horticultural Society of London.—2nd Edition, 8vo. London, 1831.

3. *Small Red Globe.* (Cat. No. 103.)

SYN. *Smooth Scotch.*

Branches erect. Leaves shining dark green. Fruit rather late, small, roundish. Skin in general smooth, but occasionally slightly hairy, dark red and thick. Flavour sharp and rich.

A good bearer. Received from Mr. BISSET, Gardener at Methven Castle, in Perthshire.

4. *Small Dark Rough Red.* (Cat. No. 267.)

Branches spreading and rather upright. Leaves downy above. Fruit early, small and round. Skin very hairy, dark red, becoming nearly black when fully ripe, rather thick. An abundant bearer and well flavoured.

The fruit very much resembles that of the Rough Red, but the leaves of the one being pubescent, and those of the other smooth, are sufficient to distinguish them from each other. From Mr. JOSEPH KIRKE of Brompton.

5. *Scotch Best Jam.* (Cat. No. 284.)

Branches erect. Leaves pubescent above. Fruit middling early, small or approaching to middle-sized, roundish. Skin slightly hairy, dark red, thick. Flavour brisk and rich.

From Messrs. AUSTIN of Glasgow.

6. *Red Champagne.*

SYN. *Red Turkey, (of some.)*
Dr. Davies's Upright.
Countess of Errol.
Ironmonger, (of many.)

Branches very erect. Fruit middling early, rather small and oblong, sometimes taper-

ing slightly towards the footstalk. Skin hairy, light red, rather thick. Flavour excellent, rich, vinous and very sweet.

A good bearer. Is called in many collections in Scotland the Ironmonger. It is a very common kind, being much cultivated; it was supplied by nearly all the Nurserymen, from whom varieties of the Small Gooseberries were obtained, and with regard to flavour it is perhaps the best of all the varieties.

7. *Red Mogul.* (Cat. No. 249.)

Branches spreading and somewhat pendulous. Fruit middling early, rather small, roundish oblong. Skin hairy, red, with a mixture of obscure green, thin. Flavour sweet and very good.

A good bearer. Differs from the Ironmonger, which it considerably resembles in some respects, in being more oblong, and not having the upper surface of the leaves pubescent. Was sent to the Society by Messrs. Backhouse of York.

8. *Keens' Seedling, Warrington.* (Cat. No. 176.)

Branches somewhat pendulous. Fruit early, middle-sized, oblong. Skin very hairy next the footstalk, in general smoother at the other end; bright red and thin. Rich and well flavoured.

A good bearer worthy of general cultivation. Was received from Mr. Ronalds of Brentford, and from Mr. Cock of Chiswick. The habit of the bush is not so pendulous as that of the Red Warrington, which it resembles in flavour; it is earlier, and has a thinner skin. The flavour of both varieties comes near the Red Champagne.

9. *Raspberry.* (Cat. No. 246.)

Branches somewhat pendulous. Fruit very early, small, roundish oblong. Skin hairy, dark red, thick. Flavour rich, sweet.

A good bearer. The branches are more pendulous than those

of the Small Dark Rough Red. The fruit is more oblong, and not so hairy. From the Nursery of Mrs. MACKIE of Norwich.

10. *Red Warrington.* (Cat. No. 333.)

SYN. *Aston.*

Aston Seedling.

Volunteer.

Branches pendulous, armed with strong prickles, which are generally triple. Fruit late, of a large size, roundish oblong. Skin hairy, light red and thick.

The pulp is clear, vinous, and of a peculiarly rich flavour, equalled by that of few, particularly of this size. In respect to flavour, and also its clear vinous pulp, and colour, it has a near affinity to the Red Champagne. But the latter is distinguished by its upright branches, and by being an earlier and smaller fruit. It is also an excellent bearer. It appears that this is not grown as a prize Gooseberry in the Northern counties, although its size exceeds many of those that are. It is probably an old variety which appears to be well known, having by its merit obtained general cultivation. It may be supposed from its name, that it has originated at Warrington in Lancashire. Has the property of hanging a considerable time on the bush. As a late sort, of good size and excellent flavour, it ought to be in every collection, even the most limited and select.

11. *Beaumont's Red.* (Cat. No. 248.)

Branches very erect and strong growing. Leaves downy, above dark green. Fruit very early, middle-sized and roundish oblong. Skin very hairy, dark red, becoming nearly black when fully ripe, and thin. Flavour rich and very sweet.

A tolerable bearer. Was sent to the Garden of the Society by Messrs. BACKHOUSE of York.

12. *Miss Bold.* (Cat. No. 214.)

SYN. *Pigeon's Egg*, (*according to some.*)

Branches somewhat erect. Leaves slightly downy above. Fruit early, middle-sized and oblong. Skin very downy, in some instances slightly hairy, light red and thin. Flavour sweet and very good.

An abundant bearer.

13. *Red Turkey.* (Cat. No. 253.)

Bush spreading, branches somewhat erect. Fruit late, small and roundish oblong. Skin quite smooth, shining dark red, thin. Flavour agreeable and sweet.

A good bearer; from Mr. FALLA, Gateshead.

DIVISION 2. FRUIT YELLOW.

14. *Sulphur.* (Cat. No. 310.)

SYN. *Rough Yellow.*

Branches erect. Leaves not pubescent above, by which, and being later, it may be distinguished from the Early Sulphur. Fruit rather late, small, roundish. Skin hairy, yellow, moderately thick, flavour rich.

A good bearer, well deserving cultivation.

15. *Yellow Champagne.* (Cat. No. 42.)

SYN. *Hairy Amber.*

Branches rather erect. Shoots of a short stiff growth, resembling considerably those of the other kinds of Gooseberries designated by the name of Champagne. Fruit rather late, small, roundish oblong. Skin hairy, yellow, thin. Flavour rich and excellent.

An abundant bearer. This is a sort of great excellence for the dessert. It is not quite so vinous and saccharine as the Red Champagne, but is, perhaps, the richest of the Yellow Gooseberries. It was sent to the garden by Mr. PETER BARNET, then gardener to ROBERT BRUCE, Esq. at Kennet, near Alloa, in Clackmannanshire. He states that he obtained the sort from the garden of the Earl of KINNOUL, at Duplin Castle, upwards of thirty years ago, and that it seems not to be commonly met with in that part of the country,

except in the vicinity of Perth. The Hairy Amber of some collections has latterly been ascertained to be synonymous.

16. *Early Sulphur.* (Cat. No. 311.)

SYN. *Golden Ball.*
Golden Bull.
Moss's Seedling.

Branches erect, armed with numerous strong prickles, which are generally triple. Shoots much crowded. Leaves light green, downy above. Fruit very early, middle-sized and roundish oblong. Skin very hairy, bright yellow, and thin. Flavour tolerably good.

An abundant bearer.

17. *Hebburn Yellow Aston.* (Cat. No. 9.)

Branches erect. Fruit middling early, small, roundish oblong. Skin hairy, deep yellow, thin. Flavour very good.

Bears plentifully; from Mr. FALLA's Nursery, at Gateshead.

18. *Rumbullion.* (Cat. No. 277.)

Branches somewhat erect. Fruit middling early, small and roundish oblong. Skin very downy, pale yellow, and rather thick. Flavour moderate; an excellent bearer.

Is a great favourite in the gardens round London, where it has been grown upwards of forty years. The unripe berries of this variety are much esteemed for bottling.

19. *Amber.* (Cat. No. 6.)

SYN. *Smooth Amber.*

Branches somewhat pendulous. Leaves yellowish green. Fruit moderately early, middle-sized, roundish. Skin smooth, bright greenish yellow, thick. Flavour moderately rich.

A good bearer. Differs from the Golden Drop, which is sometimes nearly smooth, in being later and having a thicker skin and a much larger berry, with veins more conspicuous. Was sent to the Society by Mrs. MACKIE, of Norwich.

20. *Yellow Ball.* (Cat. No. 14.)

Branches erect. Fruit rather late, middle-sized, roundish. Skin smooth, yellow, and thick. Flavour good.

As a late table sort, this deserves cultivation. Was received from the Nursery of Messrs. Dickson, of Edinburgh.

Division 3. Fruit Green.

21. *Early Green Hairy.* (Cat. No. 79.)

Branches very erect. Leaves dark green, slightly downy above. Fruit very early, small and round. Skin hairy, deep green, and thin. Flavour very sweet.

A good bearer. Was sent to the Garden from the Nursery of Mrs. Mackie, of Norwich.

22. *Hebburn Green Prolific.* (Cat. No. 149.)

Branches erect. Leaves broad and thick in substance. Fruit early, middle-sized, roundish. Skin hairy, dull green, and rather thick. Flavour sweet, and very rich.

This is a plentiful bearer. Was received from Mr. Falla of Newcastle, who states, that it was raised many years ago at Hebburn Hall, near Gateshead.

23. *Glenton Green, or York Seedling.* (Cat. No. 99.)

Branches somewhat pendulous. Leaves downy above, but more shining, and not so light green as some of that sort. Fruit early, middle-sized, oblong, narrowest at the base. Skin very hairy, green, with whitish veins, and rather thick. Flavour good, and very sweet.

An old sort. Is much grown about York. The young shoots are downy, sprinkled near the base with small bristly prickles, or setæ, independent of the prickles at the base of the leaf.

24. *Green Seedling.* (Cat. No. 141.)

Branches pendulous. Leaves pubescent above. Fruit rather late, small, roundish

oblong, inclining to obovate. Skin hairy, green, intermixed with a greyish white colour, spreading from the veins, rather thick. Flavour sugary and rich.

A good bearer. Was received from JOSEPH SABINE, Esq. from his Garden at North Mimms.

25. *Late Green.* (Cat. No. 188.)

Branches erect. Fruit late, small and round. Skin slightly downy, light green and thick. Flavour sweet and very good.

From the Garden of JOSEPH SABINE, Esq. at North Mimms.

26. *Sabine's Green.* (Cat. No. 279.)

Branches spreading and somewhat erect. Leaves slightly downy above. Fruit, round, middling early, small or rather approaching to the middle-size. Skin smooth, dull green and rather thick. Flavour sweet and rich.

A good bearer. From the Garden of JOSEPH SABINE, Esq. at North Mimms.

27. *Pitmaston Green Gage.* (Cat. No. 134.)

Branches somewhat erect. Fruit late, rather below middle-size, obovate. Skin smooth, green, thickish, often acquiring a powdery bloom. Flavour rich and sugary, very excellent.

Has the property of hanging on the bush till it shrivels, when it becomes very sugary, instead of sour or insipid as the generality of Gooseberries do when fully ripe. Possessing this property it may be inferred that it would answer well for preserving. It is also an abundant bearer. On these accounts it is highly deserving of cultivation. Was raised by JOHN WILLIAMS, Esq. of Pitmaston, near Worcester, by whom it was sent to the Society.

28. *Green Walnut.* (Cat. No. 329.)

SYN. *Belmont's Green.*

Branches spreading, with long and somewhat pendulous shoots, having the leaves

adpressed to the branches. Fruit early, middle-sized, roundish oblong. Skin smooth, dull dark green and very thin. Flavour sweet and tolerably good.

A prolific bearer. Received under both the above names from Messrs. BACKHOUSE of York, and under the first only from Mr. FALLA of Newcastle and Mr. MILLER of Bristol. It is a very old variety.

29. *Allen's Glory of Ratcliff.* (Cat. No. 109.)

Branches spreading, somewhat pendulous, rather thinly set with prickles. Fruit middling early, middle-sized, oblong. Skin quite smooth, light green and thick. Flavour very good and sweet.

A tolerably good bearer.

DIVISION 4. FRUIT WHITE.

30. *Hedge Hog.* (Cat. No. 150.)

Branches erect, set with small bristly spines. Leaves broad and rather light green. Fruit middling early, of medium size, roundish. Skin hispid, white, rather thin. Flavour rich and excellent.

Was received from Mr. BISSET, at Methven Castle, Perthshire. Has probably derived its name from the singular bristleness both of its shoots and fruit.

31. *White Chrystal.* (Cat. No. 52.)

Branches erect, and of a short stiff growth. Leaves slightly downy above, small and dark green; prickles on the shoots long, sharp and nearly straight. Fruit early, small and round. Skin slightly hairy, very downy, moderately thin and transparent. Flavour rich and very sweet.

A good bearer. Was sent to the Society from the Nursery of Mrs. MACKIE of Norwich.

32. *White Champagne.* (Cat. No. 41.)

Branches very erect, the young shoots being of an upright stiff growth. Leaves downy above. Fruit middling early, small and roundish oblong. Skin hairy, slightly downy, white and rather thick. Flavour very sweet and rich.

A moderate bearer. Differs from White Chrystal in being more erect in habit, with leaves of a lighter green colour, and more downy above; but having less down intermixed with the hairs on the surface of the fruit. Was sent to the Society by Mrs. Mackie of Norwich.

33. *Early White.* (Cat. No. 82.)

Bush spreading, shoots erect. Leaves abundant, dark green. Fruit early, middle-sized and roundish-oblong. Skin slightly downy, transparent, yellowish-white and rather thin. Flavour very sweet and good.

This is an excellent bearer and worthy of general cultivation. Was received in the Garden from the Nursery of Messrs. Backhouse of York.

34. *Chrystal.* (Cat. No. 50.)

Branches spreading and rather pendulous. Leaves abundant, not hairy above, deep green. Fruit late, small, roundish. Skin smooth, or but very slightly downy, white, thick. Flavour tolerably good.

Worthy of recommendation for coming in late. This differs from the White Champagne, the fruit of which is very downy, and early, the shoots erect and the leaves slightly pubescent.

35. *White Damson.* (Cat. No. 65.)

Branches erect. Fruit very early, small, roundish. Skin smooth, greenish-white, very thin. Flavour excellent.

A good bearer. From Messrs. Dickson of Edinburgh.

36. *White Honey.* (Cat. No. 156.)

Branches erect. Fruit small, or middle-sized, roundish oval, tapering a little to the stalk. Skin generally smooth, white, rather thick. Flavour rich and excellent.

A good bearer, well deserving of cultivation. Was received from Mr. Bisset of Methven.

Race 2. Large, or Lancashire Gooseberries.

Analytical Table.

1. Fruit Red.

A. Surface hispid.

a. Figure round.

37. Bratherton's Lord of the Manor.

b. Figure oblong.

38. Hartshorn's Lancashire Lad.
39. Leigh's Rifleman.
40. Lomas's Victory.
41. Boardman's British Crown.
42. Milling's Crown Bob.
43. Large Red Oval.
44. Red Rose.

B. Surface downy.

a. Figure round.

None of first rate quality.

b. Figure oblong.

45. Berry's Farmer's Glory.

C. Surface smooth.

a. Figure round.

None of first rate quality.

b. Figure oblong.

46. Wilmot's Early Red.
47. Farrow's Roaring Lion.
48. Rider's Scented Lemon.

2. Fruit Yellow.

A. Surface hispid.

None of first rate quality.

B. Surface downy.

None of first rate quality.

C. Surface smooth.

49. Dixon's Golden Yellow.
50. Beaumont's Smiling Beauty.

3. Fruit Green.

A. Surface hispid.

a. Figure round.

51. Lovart's Elisha.

b. Figure oblong.

52. Princess Royal.
53. Hopley's Lord Crewe.

B. Surface downy.

a. Figure round.

54. Gregory's Perfection.

b. Figure oblong.

55. Parkinson's Laurel.
56. Collier's Jolly Angler.

C. Surface smooth.

a. Figure round.

None of first rate quality.

b. Figure oblong.

57. Brigg's Independent.
58. Massey's Heart of Oak.
59. Edward's Jolly Tar.
60. Berry's Greenwood.
61. Large Smooth Green.

4. Fruit White.

A. Surface hispid.

a. Figure round.

None of first rate quality.

b. Figure oblong.

62. Cleworth's White Lion.
63. Taylor's Bright Venus.

B. Surface downy.

a. Figure round.

None of first rate quality.

b. Figure oblong.

64. Woodward's Whitesmith.
65. Crompton's Sheba Queen.
66. Wellington's Glory.
67. Saunders's Cheshire Lass.
68. Stringer's Maid of the Mill.

C. Surface smooth.

a. Figure round.

None of first rate quality.

b. Figure oblong.

69. Peers's Queen Charlotte.
70. Cook's White Eagle.

Description of the foregoing Varieties.

Division 1. Fruit Red.

37. *Bratherton's Lord of the Manor.* (Cat. No. 199.)

Branches spreading. Fruit late, very large, roundish. Skin hairy, red, rather thick. Flavour and bearing very good.

38. *Hartshorn's Lancashire Lad.* (Cat. No. 182.)

Branches somewhat erect. Fruit middling early, large and roundish-oblong. Skin hairy, deep red and thick. The veins and suture are distinctly marked near the foot-stalks with white specks. Flavour sweet and moderately agreeable.

A good bearer, and acquires a size which makes it an object of cultivation for prizes.

39. *Leigh's Rifleman.* (Cat. No. 257.)

SYN. *Allcock's Duke of York*
Grange's Admirable.
Yates's Royal Anne.

Branches somewhat erect. Prickles a little deflexed, frequently triple. Leaves moderately sized, of a peculiar rich and rather light green colour, but not shining. Fruit late, large, roundish oblong. Suture on both sides rather depressed, and distinctly marked with white specks. Skin hairy, red with a mixture of green, thick. Flavour sharp, but rich and agreeable. A good bearer.

This gooseberry is known round the Metropolis by the two first of the synonyms attached. The Rifleman of the London gardens, as I am informed by Mr. JAMES GRANGE of Covent Garden, is a green gooseberry.

40. *Lomas's Victory.* (Cat. No. 324.)

Branches somewhat pendulous. Leaves rather deeply lobed. Fruit middling early, moderately large, and roundish oblong. Skin hairy, light red, thin. Flavour moderate. A good bearer.

The unripe berries of this kind are in estimation for tarts and boiling. It is often called Lomax's Victory, but the grower's real name is LOMAS.

41. *Boardman's British Crown.* (Cat. No. 32.)

Branches somewhat pendulous. Prickles often triple, much dilated at the base, and reflexed. Fruit middling early, very large, roundish oblong. Skin hairy, red, with a mixture of green, thick. Flavour moderately rich and sweet.

A good bearer. Is esteemed for its size among the prize growers.

42. *Milling's Crown Bob.* (Cat. No. 63.)

Branches pendulous. Prickles generally single, broad at the base, and a little reflexed. Fruit rather late, very large, oblong. Skin hairy, red with a greenish mixture near the base, very bright red at the other end, thin. The suture along both sides is marked with whitish specks. Well flavoured.

A plentiful bearer, worthy of general cultivation, and much grown in the gardens near London. The bright red colour of the end opposite the footstalk is a distinguishing mark in this variety. It is also in great estimation as a prize gooseberry, always standing high in the prize lists.

43. *Large Red Oval.* (Cat. No. 250.)

Branches spreading. Fruit rather late, large, oval. Skin hairy, bright red, thick. Flavour vinous and rich, bearing a resemblance to the Red Warrington.

A sort well deserving cultivation.

44. *Red Rose.* (Cat. No. 251.)

Branches somewhat pendulous. Fruit early, large, and roundish oblong. Skin slightly hairy, with down intermixed, very bright red, and thin. Flavour rich and excellent. This is a good bearer.

45. *Berry's Farmer's Glory.* (Cat. No. 88.)

Branches pendulous. Upper surface of the leaves slightly pubescent. Fruit middling early, very large and roundish oblong. Skin downy, red, with a mixture of green, and thick. Flavour very good. This is a plentiful bearer.

46. *Wilmot's Early Red.* (Cat. No. 348.)

Syn. *Wilmot's Early.*

Branches pendulous. Prickles few, small and generally single. Leaves deeply lobed. Fruit very early, large, roundish-oblong, sometimes rather ovate, projecting on each side of the footstalk. The skin is quite smooth, dull dark red, thin. Flavour middling, a good bearer.

Raised from seed by Mr. John Wilmot of Isleworth about 20 years ago. It has been described in the Transactions of the Society (Vol. iv. p. 206, 1*st. Series.*) as exhibited in 1819.

47. *Farrow's Roaring Lion.* (Cat. No. 260.)

Syn. *Great Chance.*

Branches somewhat pendulous. Prickles very small. Fruit late, of a remarkably

large size, oblong. Skin smooth, dull red, thin. Flavour rather sweet, and tolerable for a fruit of this size. A good bearer.

This Gooseberry attains the largest size of any one known, and consequently is most successful at all the Prize Shews. In 1825, the weight of one is recorded to have been 31 dwts. 16 grs. Its superior merit as a shew fruit, appears to have led to an attempt to introduce it to growers under another name, which will account for the Synonym now given to it. The Chance was exhibited as a novelty in Cheshire, but as I learn from the account of the shews for 1825, "at a Meeting of Gooseberry growers held at the Wolf's Head, Congleton, on the 3d of August in that year, it was agreed that the *Great Chance* should in future be only shewn as the Roaring Lion." In consequence of this the supposed original grower of the Chance, was constrained to give his Red Seedling *Robin Hood*, his Yellow Seedling *Prince of Orange*, and his Red Seedling *Tarragon*, to the subscribers for the Chance as a compensation. It is often erroneously called Farrer's Roaring Lion.

48. *Rider's Scented Lemon.* (Cat. No. 283.)

Branches spreading. Fruit rather late, large, obovate. Skin smooth, red, moderately thick. Flavour very good. Bears abundantly.

Division 2. Fruit Yellow.

49. *Dixon's Golden Yellow.* (Cat. No. 123.)

Branches pendulous. Fruit early of moderate size, roundish-oblong or somewhat turbinate. Skin quite smooth, greenish-yellow, thin. Flavour agreeable, and sweet. A moderate bearer.

Received from Messrs. Backhouse of York; it is cultivated round Manchester and in the shew counties, but is not much esteemed as a Prize Gooseberry. Its flavour however will recommend it to general cultivation.

50. *Beaumont's Smiling Beauty.* (Cat. No. 293.)

Branches somewhat pendulous. Fruit early, large, oblong, narrowest at the base. Skin quite smooth, yellowish white, somewhat transparent and thin. Flavour sweet and tolerably good. A plentiful bearer.

Division 3. Fruit Green.

51. *Lovart's Elisha.* (Cat. No. 84.)

Branches erect. Fruit rather late, very large, roundish, projecting near the base. Skin hairy, pale green, thickish. Flavour tolerably good, considering the large size of the fruit, which ranks it among the first class of Prize Gooseberries.

52. *Princess Royal.* (Cat. No. 237.)

Branches pendulous. Leaves large and dark green. Fruit middling early, very large and roundish-oblong, with shoulders projecting on each side of the footstalks. Skin rather thin, slightly hairy, greenish-white at the base, near which the veins and suture are deep green, at the apex the skin is very white. Well flavoured. A good bearer.

53. *Hopley's Lord Crewe.* (Cat. No. 197.)

Branches erect. Fruit rather late, large, roundish-oval, or oblong. Skin slightly hairy, green, moderately thick. Flavour very good considering the size of the fruit. A good bearer.

54. *Gregory's Perfection.* (Cat. No. 230.)

Branches pendulous, thinly set with prickles which are generally single. Fruit late, middle sized, round. Skin slightly downy, green with whitish veins, rather thick. Flavour sweet and agreeable. A middling bearer.

55. *Parkinson's Laurel.* (Cat. No. 189.)

Branches erect. Fruit rather late, large, roundish-oblong. Skin very downy, pale green, thin. Flavour very sweet. An excellent bearer.

56. *Collier's Jolly Angler.* (Cat. No. 168.)

Syn. *Collin's Jolly Angler.*

Branches erect. Fruit late, large and oblong. Skin downy, light green, and thin.

Moderately well flavoured. A good bearer. The footstalks of the fruit, are thick at their insertion.

In high repute as a shew Gooseberry; was at the head of the Yellows in 1826.

57. *Briggs's Independent.* (Cat. No. 159.)

Branches somewhat erect. Fruit very early, large, and oblong, narrowest at the base, rather projecting on one side of the footstalk, which is thick at the insertion. Skin smooth, green and very thin. Flavour indifferent. This is a good bearer.

58. *Massey's Heart of Oak.* (Cat. No. 148.)

Branches pendulous. Leaves inclining to the shoots. Fruit middling early, large and oblong, rather narrower at the base; the footstalks thick and tapering into the fruit. Skin smooth, with pale yellowish veins and thin. Flavour rich and excellent. An abundant bearer.

As a large Gooseberry this is worthy of cultivation.

59. *Edwards's Jolly Tar.* (Cat. No. 174.)

Branches somewhat pendulous. The leaves are rather large, shining, and deep green. Fruit middling early, very large and roundish-oblong. Skin smooth, green with yellowish veins, and rather thick. Flavour rich and sweet. This is a good bearer.

Resembles Massey's Heart of Oak, but is not quite so early, the fruit is also less oblong.

60. *Berry's Greenwood.* (Cat. No. 144.)

Branches with long pendulous shoots. Fruit early, large, oblong, narrow at the base. Skin smooth, dull light green, and thin. Flavour moderate. This is a good bearer.

61. *Large Smooth Green.* (Cat. No. 297.)

Branches spreading. Fruit late, large, obovate. Skin smooth, pale green, thick. Flavour very good.

Is deserving of cultivation as a late sort.

Division 4. Fruit White.

62. *Cleworth's White Lion.* (Cat. No. 342.)

Branches somewhat pendulous. Fruit late, roundish oblong. Skin slightly hairy, sometimes smooth, white, transparent, and very thin. Of rich and excellent flavour.

A late variety of superior quality, worthy of general cultivation.

63. *Taylor's Bright Venus.* (Cat. No. 30.)

Branches rather erect. Fruit middling early, middle-sized, obovate. Skin very slightly hairy, white, acquiring a slight bloom when it hangs after being ripe, which it has the property of doing until it begins to shrivel. Flavour sugary, rich and excellent. A good bearer.

The qualities of this sort bear much resemblance to those of the Pitmaston Green Gage Gooseberry.

64. *Woodward's Whitesmith.* (Cat. No. 347.)

Branches erect. Fruit middling early, large, roundish oblong, or somewhat ovate. Skin very downy, white, thin. Flavour excellent. An abundant bearer.

The skin becomes of a brownish or rusty colour when very ripe, especially where much exposed. Is in very general cultivation, especially round the Metropolis.

65. *Crompton's Sheba Queen.* (Cat. No. 287.)

Branches somewhat erect. Fruit middling early, large, roundish oblong. Skin downy, white, thin. Flavour rich, very excellent. A good bearer.

This variety approaches nearly to Woodward's Whitesmith, and is a gooseberry of great excellence.

66. *Wellington's Glory.* (Cat. No. 336.)

Branches erect. Fruit middling early, large, rather ovate. Skin very downy, white, thin. Flavour rich and good. A tolerable bearer.

This is also nearly allied to Woodward's Whitesmith, but differs chiefly in the skin being rather thinner. Is one of the first White shew gooseberries. In 1827 it weighed 23 dwts: 14 grs.

67. *Saunders's Cheshire Lass.* (Cat. No. 48.)

Branches erect. Fruit very early, large, oblong. Skin downy, white, very thin. Flavour rich and sweet. A good bearer.

Is recommended to be cultivated to supply green fruit for tarts, and it early attains a size fit for that purpose.

68. *Stringer's Maid of the Mill.* (Cat. No. 205.)

Branches erect. Fruit middling early, middle sized, or rather large, obovate. Skin downy, white, thin. Flavour very good. Bears well.

Has some resemblance to the Cheshire Lass.

69. *Peers's Queen Charlotte.* (Cat. No. 242.)

Branches somewhat erect. Fruit early, middle-sized and oblong. Skin generally smooth, (in some instances slightly hairy), yellowish white and thin. Flavour very good. A tolerable bearer.

70. *Cook's White Eagle.* (Cat. No. 339.)

Branches rather erect. Fruit late, large, obovate. Skin smooth, white, thick. Flavour very good.

As a large late sort of good flavour, this deserves to be recommended. It also ranks high in the prize lists, having been grown to upwards of 24 dwts.

XXXIV. *A Note upon the Black Corinth Grape. By Mr.* Robert Thompson, *Under-gardener in the Fruit Department of the Society's Garden, at Chiswick.*

Read July 17, 1832.

Some account of this variety has already been given at page 515, of the 4th Volume of the 1st. Series of the Transactions, on the occasion of its fruit having been exhibited by Mr. Oldaker, from the garden of Sir Joseph Banks.

It might have been supposed that a variety so interesting as this, so exceedingly important in a commercial point of view, and so readily to be distinguished from all other sorts, would have become more common in gardens, and at least would have been easily procurable. Since however, it has been found from experience that many other grapes are confounded with it; and that there is very great uncertainty in procuring it correctly from the nurseries, the Council have thought it advisable that the following description of it should be published, along with an accurate drawing from the pencil of the late Mr. William Hooker.

The Wood is vigorous, of much the same appearance as that of other vines.

The Leaves are more or less 5-lobed; in some the incisions are slight, in others deep; occasionally the lateral ones are very shallow, whilst those on each side of the central lobe are large; the serratures are tolerably sharp. The under side is permanently downy; when young, both surfaces have a hoary appearance. The petioles are moderately strong, tinged with purple.

The Black Corinth Grape.

The Bunch is rather small. The Berries are small, roundish, about the size of a pea with sometimes a few much larger ones intermixed, generally without seeds. The Skin is thin, of a deep black colour. The Juice is sugary, abundant, without perfume, refreshing and pleasant, but in an undried state, not so high flavoured as to make it an object of cultivation to any extent for the dessert. The Seeds, where they sometimes happen to be found in some of the large berries, are small and obovate, with a somewhat elongated neck.

Bears freely under glass, producing from three to five bunches at each shoot, and is well adapted for forcing in pots; great heat seems not to be necessary, for it has succeeded well, in light soil, against a South wall in Sir Herbert Taylor's garden at Fangrove near Chertsey. The fruit ripened there somewhat earlier than other sorts in the same situation.

List of Persons to whom the LARGE SILVER MEDAL *has been presented by* ORDER OF THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON, *from October* 20, 1831, *to June* 12, 1832.

To Messrs. CHANDLER and SON, for the Collection of Camellias, exhibited by them April 3, 1832.

To Messrs. WATERER, for their Exhibition of Azaleas and Rhododendrons June 5, 1832.

List of Persons to whom the BANKSIAN MEDAL *has been presented by* ORDER OF THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON, *for Exhibitions at General Meetings of the Society, from November* 4, 1831, *to June* 12, 1832.

To Mr. WILLIAM LINDSAY, Gardener at Chiswick House, for Peaches and Nectarines, exhibited by him July 19, 1831.

To Messrs. ROLLISSONS, for a very fine Specimen of Cypripedium insigne, exhibited November 1, 1831.

To Mr. ROBERT BUCK of Blackheath, for Charlesworth Tokay Grapes, exhibited January 17, 1832.

To Mr. BENJAMIN FIELDER, Gardener to WILLIAM LINWOOD, Esq. F.H.S. for an Enville and Queen Pine Apples, exhibited February 7, 1832.

To WILLIAM WELLS, Esq. F.H.S. for a Collection of Camellias, exhibited by him April 3, 1832.

To Mr. GEORGE SMITH, F.H.S. for a Collection of Camellias, exhibited April 3, 1832.

To Mr. GEORGE LODDIGES, F. H.S. for a Collection of Camellias, exhibited April 3, 1832.

To EDWARD GRAY, Esq. F.H.S. for a fine Specimen of Maxillaria Harrisoniæ, exhibited April 3, 1832.

To Mrs. MARRYAT, F.H.S. for Specimens of Tacsonia pinnatistipula, exhibited June 5, 1832.

To Mr. JOHN LEE, F.H.S. for a Collection of Azaleas and Rhododendrons, exhibited June 5, 1832.

To the Rev. THOMAS GARNIER, F.H.S. for a Collection of Azaleas and Rhododendrons, exhibited June 5, 1832.

To Mr. JAMES THOMPSON of the Mile End Nursery, for a Collection of Rhododendrons, exhibited June 5, 1832.

To WILLIAM WELLS, Esq. F.H.S. for a Collection of Azaleas, exhibited June 5, 1832.

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THE Committee appointed by the Horticultural Society to direct the publication of the Papers read before them, take this opportunity to inform the Public, that the grounds of the choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them, without pretending to answer for the certainty of the facts, or the propriety of the reasonings, contained in the several Papers so published; which must still rest on the credit or judgment of their respective Authors.

It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

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List of Medals presented to Local Horticultural Societies within the United Kingdom for the year 1830.

List of Medals presented to Local Horticultural Societies within the United Kingdom for the year 1831.

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DIRECTIONS TO THE BINDER.

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The bunch is rather small. The berries are small, roundish, about the size of a pea with sometimes a few much larger ones intermixed, generally without seeds. The skin is thin, of a deep black colour. The juice is sugary, abundant, without perfume, refreshing and pleasant, but in an undried state, not so high flavoured as to make it an object of cultivation to any extent for the dessert. The seeds, where they sometimes happen to be found in some of the large berries, are small and obovate, with a somewhat elongated neck.

Bears freely under glass, producing from three to five bunches at each shoot, and is well adapted for forcing in pots; great heat seems not to be necessary, for it has succeeded well, in light soil, against a south wall in Sir Herbert Taylor's garden at Fangrove near Chertsey. The fruit ripened there somewhat earlier than other sorts in the same situation.

XXXV. *A Report upon the principal Varieties of the Cherry cultivated in the Garden of the Society. By Mr.* Robert Thompson, *Under Gardener in the Fruit Department.*

Read October 16, 1832.

The following account of the varieties of Cherry cultivated in the Garden of the Society is by no means a complete one of the whole species, but on the contrary refers to such only as have fruited, and been sufficiently examined by myself. It is however probable that it comprehends most of the really important sorts; and that what are omitted are generally of inferior quality.

In this, as in almost all similar enquiries, we have found ourselves very much embarrassed by the constant errors, or misnomers of those who have supplied the trees cultivated in the Garden; a circumstance which has not only retarded the appearance of this and many other reports of the like nature, but which also is still productive of uncertainty as to the exactness of some of the synonyms I have quoted.

The object of the Report being simply to give such practical information as the Society possesses upon the subject, it has been considered unnecessary to repeat the well known tradition of the Cherry having been originally obtained from Cerasus or Chirisonda by the Roman general Lucullus, or those other historical particulars which are to be found in the works of every writer upon pomological matters.

In the classification of the varieties of the Cherry the French have certainly been more successful than any others, and it is their method of arrangement that pomological writers chiefly adopt;

the authors of that country are however far from being agreed upon the sorts that should be referred to their divisions. Instead of attempting to reconcile their differences, which would be a long and difficult subject of inquiry, the object of this paper will probably be sufficiently effected if I mention what appears to be most generally agreed upon among them.

The divisions in question are the following: viz. *Merisiers, Guigniers, Bigarreautiers, Cerisiers,* and *Griottiers.*

1st. The *Merisiers.* These are like the wild Cherries of the woods; and such of them as have fruited in the Garden agree with what is stated of them by Noisette in his Jardin Fruitier, p. 15. The fruit is small, and consequently with little flesh; the latter containing, even in its fullest maturity, enough of bitterness to justify the name of *Merise,* formed it is said from the words *Cerise amère.* It may be observed that from this French name of *Merise,* has probably originated the appellation given to wild Cherries in some parts of England, where they are called *Merries.* The Merry Cherry of Cheshire mentioned in his English Flora by the late Sir James Smith would be ranked by the French among the Merisiers.

2nd. The *Guigniers.* Partly in this division, and partly in that of the Bigarreautiers, are included the Heart Cherries of this country. It appears from the generality of those trees in the Garden which bear the name of Guignier that the fruit is heart-shaped, with rather tender, juicy, sweet flesh; their colour is chiefly black.

3rd. The *Bigarreautiers.* The principal difference between these and the Guigniers consists in the greater firmness of the flesh of the Bigarreaux; but from this difference no complete distinction can be drawn, for the tenderest of the Bigarreaux, and the firmest of the Guignes are, in this respect, on an equality. The Bigarreaux are generally of a pale waxy white on the one side, with a blush of

red on the other, and to such party-coloured fruit the word was originally applied. With regard to this, MAYER, in the Pomona Franconica, (vol. ii. p. 34) states that the word "Bigarreau is derived from *bigarrure,* which itself is a corruption of the Latin *bis variare,* these Cherries being called *bis varii,* because they are *bigarrée* with white and red, or white and black. In the new DUHAMEL it is mentioned that those Cherries only whose skin, and sometimes flesh, is *tiquetée,* or *bigarrée* with different colours, were at one time called Bigarreaux; but at length the signification of the word was neglected, and according to custom at the present time, all the heart-shaped Cherries which have the flesh firm and *croquant* are arranged under the head of Bigarreaux.

The trees of these three divisions have a near resemblance to each other, and in many respects they absolutely agree. They are comprehended in the first general division of the following classification, so that further explanation of their characters is here unnecessary.

4th. The *Cerisiers.* These, and also the Griottiers, are very distinct from those already treated of. They include the Cherries whose fruit has a tender aqueous pulp, more or less acid; they can also be known by their wood, leaves, and flowers, according to which they are comprehended under the second class, or general division, in the arrangement about to be submitted. The May Duke, and Kentish or Flemish, are typical varieties of the Cerisiers.

5th. The *Griottiers.* Formerly these were written *Agriottiers,* probably from the sharpness of their juice; a quality which prevails more or less in all of them. The distinction, however, is very indefinite between them and the Cerisiers; the Morello tribe chiefly composes this division. In NOISETTE's Manuel it is headed *Cerisiers du Nord,* or *Griottiers.*

Although the distinctions of these divisions are in some cases sufficiently definite, yet it will have been remarked from what has

already been stated, that in other cases they are so vague as to be unavailable for the purpose of discrimination. For this reason I have ventured to propose a classification of my own, in which I believe that natural habit will not be found to be neglected.

The first class consists of Cherries, of which the Bigarreau and Black Heart may be instanced as typical of the better kinds. The leaves are generally large, pendent, waved on the margin, with sharp prominent veins beneath, coarsely serrated, of thinner texture and of a more yellowish green than those of the following class; buds pointed; flowers large, proceeding from wood of not less than two years old; petals loosely set, not forming a well expanded cup-shaped flower, like those of the May Duke, Kentish, &c. stamens slender and irregular in length, some being longer and others shorter than the style.

The second class is composed of aqueous Cherries, such as the May Duke, Kentish, and Morello. The leaves are generally smaller than those of the preceding class, and have their margins plane, with the veins beneath as they approach the margin almost buried in the parenchyma, which is thicker than in the other class. The petioles support the leaves erect, or at least from hanging loosely and pendent; the latter are deep green. The flowers expand widely, and the petals hang not loose but form a regular cup-shaped flower, with strong stamens, generally shorter than the style.

The subdivisions of the first class are taken from the form and colour of the fruit, and require no further explanation.

In the second class, as all the varieties are coloured nearly alike, no white, nor white and red fruit having yet been met with among them, the form of the fruit, the sweetness or acidity of its flesh, and the colour of the juice, constitute the distinctions of the sections.

CLASSIFICATION OF CHERRIES.

Class I. Leaves waved on the margin.

† *Fruit heart-shaped, or oval.*

* Colour uniform, dark red or black, - - § 1
** Colour pale yellow and red, - - - § 2
*** Colour uniform, pale yellow, - - - § 3

†† *Fruit round or oblate.*

* Colour uniform, dark red or black, - - § 4
** Colour pale yellow and red, - - - § 5
*** Colour uniform, pale yellow, - - - § 6

Class II. Leaves with the margin plane.

† *Fruit roundish, heart-shaped.*

* *Flesh sweet.*

a. Juice pale, - - - - § 7
b. Juice purple, - - - - § 8

** *Flesh acid.*

a. Juice pale, - - - - § 9
b. Juice purple, - - - - § 10

†† *Fruit round or oblate.*

** *Flesh sweet.*

a. Juice pale, - - - - § 11
b. Juice purple, - - - § 12

** *Flesh acid.*

a. Juice pale, - - - - § 13
b. Juice purple, - - - § 14

Class I. Leaves waved on the margin.

§ I. *Fruit heart-shaped or oval, dark red or black.*

1. Black Heart.

Syn. Black Heart. *Langl. Pom.* t. 18, f. 5.* *Mill. Dict. No.* 8. *Brooksh. Pom. Brit.* 8, t. 7. *Lindl. Guide,* 149. *Hort. Soc. Cat.* ed. 2, No. 44.

Spanish Black Heart. *Hort. Cat.* No. 49.

Guignier à Fruit Noir. *ib.* No. 122. *Duham.* 1. 158. t. 1, f. 1.

Grosse Guigne Noire. *Mayer. Pom. Franc.* 2. 31, t. 8.

Schwarze Tauben Herz. *id. ibid.*

Grosse Schwarze Herz Kirsche. *ib. Sickl. Teutsch. Obstg.* 4. 303, t. 15. *Truchs. Kirsch.* p. 142.

Early Black.

Black Caroon.

Branches somewhat spreading. Shoots brownish, with a grayish epidermis. Leaves rather large, oblong, waved, coarsely serrated. Petioles nearly two inches in length, having generally two reniform glands near or upon the base of the leaf. Flowers middle-sized for this class. Petals roundish, imbricated. Stamens generally shorter than the style. Fruit tolerably large, heart-shaped, usually blunt at the apex, compressed on one side in the direction of the suture. Stalk from an inch and a half to two inches in length. Skin almost black. Flesh deep claret colour throughout, of a consistence between the hard and soft kinds, parting from the stone, with however a small portion adhering. Tolerably juicy and rich. Stone large, roundish-ovate.

The trees are good bearers, ripening in the beginning, or about the middle of July.

A well known and very old variety, which, on account of its good bearing, may still deserve cultivation in Cherry orchards. As a wall variety it will now be superseded by the Black Tartarian, and

* A list of the works quoted in this and similar Papers will be given at the end of the present volume.

KNIGHT'S Early Black, both of which are Cherries of superior merit, ripening near the same period of the season.

The *Black Bigarreau,* or *Bigarreau Noir* of some, and *Ansell's Fine Black,* are either the same as, or very similar to the Black Heart.

2. BÜTTNER'S BLACK HEART.

SYN. Büttner's Herz Kirsche. *Hort. Cat.* No. 59.
Schwarze Neue Herz Kirsche. *Sickl.* 7, 388.
Büttner's Neue Schwarze Herz Kirsche. *ib.* 22, 201, t. 19.
Christ, Pom. 275.
Büttner's Schwarze Herz Kirsche. *Truchs. Syst.* 122.

Is scarcely distinguishable from the Black Heart.

3. KRONBERG BLACK HEART.

SYN. Cronberger Herz Kirsche. *Hort. Cat.* No. 70.
Kronberger Kirsche. *Christ, Pom.* 274.
Wildling von Kronberg. *id. ibid.*
Kronberger Schwarze Herz Kirsche. *Truchs. Syst.* 124.

Bears considerable resemblance to the Black Heart in regard to its wood and leaves. The fruit differs chiefly in its stone being not so large.

A good bearer, and ripens about the same time as the Black Heart.

Was raised from seed at Kronberg, in Saxony, sometime previous to 1797. It was received in the Garden among a collection of German Cherries from Dr. DIEL.

4. TRADESCANT'S BLACK HEART.

SYN. Tradescant's Black Heart. *Hort. Cat.* No. 203.
Tradescant's. *Brooksh. Pom.* 9, t. 11.
Elk-horn. *Prince, Treat.* 28.
Elk-horn of Maryland. *id. ibid.*

Bigarreau gros Noir.
Guigne Noire Tardive.
Grosse Schwarze Knorpel Kirsche mit Saftigen Fleisch.

This differs from the Black Heart in its leaves not being so deeply serrated; and the petioles much shorter, being only about an inch in length on the young wood. Flowers smaller, with obovate petals, scarcely imbricated. Fruit about the same size. Skin blackish, with minute stripes of dark red interspersed. Flesh firmer than that of the Black Heart, with a similar flavour. The tree is scarcely so good a bearer, and the fruit ripens about a week later.

It is stated in Brookshaw's Pomona Britannica to have been raised by John Tradescant, Gardener to Charles I. Elsewhere it has been found to be designated by various other names. Mr. Prince, proprietor of the Linnæan Botanic Garden at Flushing, near New York, mentions his having discovered it in a tour through Maryland about thirty-four years ago in the garden attached to an hotel, where it was called the Elkhorn Cherry.

5. Black Tartarian.

Syn. Black Tartarian. *Pom. Mag.* t. 44. *Lindl. Guide,* 149.
Hort. Cat. No. 198.
Fraser's Black Tartarian. *Forsyth, Treat. ed.* 7. p. 80.
Tartarian.
Fraser's Black.
Fraser's Tartarian.
Fraser's Black Heart.
Ronalds's Black Heart.
Ronalds's Heart.
Circassian.
Superb Circassian.
Black Russian.

Ronalds's Large Black Heart. *Forsyth*, 79.
Black Circassian. *Hooker, Pom. Lond.* t. 31.
Fraser's Tartarische Herz Kirsche.
Fraser's Tartarische Schwarze Herz Kirsche. *Truchs. Syst.* 130.

Tree vigorous, spreading when grown up. Young shoots erect, with short joints and a whitish epidermis. Leaves large, oblong, acuminate, waved on the margin, rather coarsely serrated; veins beneath prominent. Petioles strong, upwards of two inches in length, with very large reniform glands. Flowers large. Petals roundish oval, concave and imbricating each other. Stamens shorter than the styles. Fruit very large, obtuse heart-shaped, with an uneven surface when the fruit is very ripe. Stalk rather strong, and about an inch and half or two inches in length. Flesh purplish, tolerably tender, juicy and rich. Stone middle-sized, roundish-ovate.

Ripens on a south wall in the end of June; on other aspects it may be in perfection as late as the end of July or beginning of August. In favourable situations it will succeed as a standard.

This excellent variety, together with the White Tartarian, is generally admitted to have been brought to this country from Russia by the late Mr. John Fraser of Sloane-square, Chelsea. He purchased them from a German, who cultivated them in a garden near St. Petersburgh. Mr. Fraser afterwards saw them in the Imperial Gardens, where they were successfully cultivated in pots.

In the account given of this sort in the Pomona Londinensis, it is stated to have been introduced from Circassia, by Mr. Hugh Ronalds of Brentford, in 1794, which is two years previous to the introduction of it by Mr. Fraser. It is also said to have originated in Spain, whence it was transmitted to the Russian Gardens, and through them to England.

6. Knight's Early Black.

Syn. Knight's Early Black. *Hort. Trans.* 3. 211; 4. 510. *Pom. Mag.* t. 93. *Lindl. Guide,* 152. *Hort. Cat.* No. 150.

No particular distinction can be drawn between the wood and leaves of this very excellent sort and that of the Black Tartarian. The fruit is also very similar, but ripens earlier. On a south aspect, which it highly merits, it will be ripe by the middle, or towards the end of June. It is an abundant bearer, and one of the most valuable Cherries known, and ought to be in every collection on account of its earliness, handsome appearance, and excellent quality. It will succeed as a standard; but where walls are afforded for this sort of fruit, it should always be one of the sorts appropriated.

Was raised by Mr. Knight about the year 1810, from a seed of the Bigarreau, fertilized by the pollen of the May Duke.

7. Waterloo.

Syn. Waterloo. *Hort. Trans.* 2. 208, 302. t. 31; 3. 212; 4. 510. *Hort. Cat.* No. 211. *Lindl. Guide,* 147.

Wood strong, with a grayish cuticle. Leaves drooping, large, wavy, with moderately deep serratures. Flowers large. Petals roundish, imbricated. Stamens rather slender, usually shorter than the style. Fruit very large, broad and cordate at the base, convex on one side, flattened on the other, with a broad suture. Apex slightly depressed. Skin dark purplish red, or almost black, covered with numerous minute dots of a palish colour. Flesh deep purplish red, darkest next the stone, from which it parts freely; tender, juicy, with a rich sweet flavour. Stalks long and slender. Stone small, roundish, compressed.

Ripens in the end of June and beginning of July, or earlier on a wall. It bears tolerably well as a standard, but should be trained to an east or west aspect, to be ripened in perfection. The leaves are so large that the fruit does not acquire a good colour unless

freely exposed to sun and air, on which account the branches should be trained widely apart.

This sort was raised by Mr. KNIGHT from a seed of the Ambrée of DUHAMEL, fertilized by the pollen of the May Duke.

The tree partakes of the character of both its parents in a remarkable degree: the wood and leaves are those of the Bigarreau tribe, while the flowers are those of the May Duke, the stamens being shorter than the styles, a peculiarity which is universal in all the Duke Cherries.

8. BLACK EAGLE.

SYN. Black Eagle. *Hort. Trans.* 2. 138. t. 9. 208, 302; 3. 212. *Hort. Cat.* No. 43. *Lindl. Guide,* 148.

Tree spreading. Branches strong, dark brown, partially sprinkled with a grayish epidermis. Leaves oblong, acuminate, broadest about two-thirds from the base, doubly serrated, but not so deeply as those of the Heart Cherries generally are; partaking also of the thick texture of the leaves of the Duke Cherries; but from their larger size, pendulous growth, and somewhat wavy margin, they are rather more allied to those of the former. Petioles longish, and moderately strong, with reniform glands. Flowers middle-sized. Stamens shorter than the style. Petals roundish, or roundish-oval, concave, imbricated. Fruit between heart-shaped and round, flattened at top and bottom. Stalk short and thick, like that of the May Duke. Skin black when the fruit is fully ripe and well exposed. Flesh tender, with a dark purplish juice, rich and high-flavoured. Stone small, round.

Ripens soon after the May Duke. It is an excellent bearer either as a standard, or against a wall, especially on an east or south-east aspect.

This sort was raised by Miss ELIZABETH KNIGHT, of Downton Castle, about the year 1806, from a seed of the Ambrée, which had been fertilized by the pollen of the May Duke. It far surpasses the Black Heart in point of flavour, and fully equals it in regard to bearing. Its cultivation has of late been extensive, and it deserves to be still continued.

9. Werder's Early Black Heart.

Syn. Werdersche Frühe Schwarze Herz Kirsche. *Hort. Cat.* No. 213. *Truchs. Syst.* 109.

Branches spreading, of a dark brown colour, sprinkled with a grayish epidermis. Leaves middle sized for this class of Cherries, oblong, waved, irregularly and coarsely serrated. Veins beneath sharp and prominent. Petioles of medium length and thickness, with generally two reniform glands. Flowers rather large, opening early. Petals thin, obovate, slightly imbricated. Stamens slender, in general considerably shorter than the pistillum. Fruit large, obtusely heart-shaped. Stalk about an inch and a half in length, moderately strong. Skin shining black. Flesh purplish-red, firm, but juicy and rich. Stone middle-sized, roundish ovate.

A valuable sort, ripening as early as the middle of June in favourable situations. It may be distinguished from the Early Purple Guigne by having shorter petioles, and also less pubescence upon them. It ripens nearly as early as the sort just mentioned, and much earlier than the May Duke. Being of good size and quality, and considering the very high value that is set on early Cherries, it is well deserving of cultivation.

The Baron Truchsess had this sort in 1794 from Kronberg, to which place it had been sent by Sello, one of the Royal Prussian Gardeners.

10. Early Purple Guigne.

Syn. Early Purple Guigne. *Hort. Trans. 2nd Series,* 1. 144, t. 4.

Early Purple Griotte. *Hort. Cat.* No. 108.

Branches spreading, moderately strong, dark brown, sprinkled with a silvery epidermis. Leaves middle-sized, oblong, drooping, with waved margins, unequally and rather coarsely serrated; the veins beneath small, but sharp and prominent. Petioles long, and rather slender, dark red, with numerous scattered hairs, which are also found more abundant on the midrib and veins of the under surface than usual. The glands upon the petioles are large and reniform, generally two, but frequently more. Flowers early, large. Petals oblong-oval, scarcely imbricated. Stamens slender, some of them longer than the pistillum. Fruit of a good size, somewhat heart-shaped and compressed. Stalks long, of moderate thickness. Skin shining dark purple when the fruit is well ripened. Flesh purplish,

juicy, tolerably soft and tender, with a rich sweet flavour. Stone middle-sized, roundish-ovate.

Ripens on an east or west wall in the first week in June. On a south aspect it may be obtained in the end of May. Its season of ripening precedes that of the May Duke about a fortnight, a circumstance which renders it of great importance, considering the high value that is set upon early Cherries. The May Duke is sold for ten shillings a pound in the London market, if forwarded only a week by being on a south aspect. A sort therefore equally good and handsome as the May Duke, and so much earlier as this is found to be, is a valuable acquisition.

It was received in a collection from M. De Candolle, of Geneva, in 1822, under the name of *Griotte de Chaux*, which is a late Cherry, of the nature of a Morello, belonging to the other class of this arrangement. This being the case, and its foreign name not having been found, it was temporarily called in the Garden the *Early Purple Griotte*, under which name, it may be proper to mention, grafts of it were for some time distributed. Subsequently, a better knowledge of the French Griottiers having been obtained, this sort was found to possess characters differing from them, and the present name was adopted on its publication in these Transactions at the above reference, where a good figure, accompanied with an account of this very excellent variety, will be found.

11. Boreatton.

Syn. Boreatton. *Hort. Cat.* No. 54.

Tree spreading. Leaves rather large, ovate-oblong, tapering to the point, deeply and very sharply serrated. Petioles nearly two inches in length, slender, and having generally two prominent roundish-reniform glands. Fruit resembling the Black Heart, but not quite so large. Stalk long, and rather slender. Stone large, ovate.

Ripens in the beginning of July, and is a good bearer. With this recommendation it may be reckoned as a good second-rate Cherry, but cannot by any means rank with those of first estimation.

§ II. *Fruit heart-shaped or oval, pale yellow and red.*

12. Bigarreau.

Syn. Bigarreau *or* Graffion. *Hooker, Pom. Lond.* t. 46. *Brooksh.* 9, t. 10. *Forsyth, ed.* 7, 79. *Lindl. Guide,* 148. *Hort. Cat.* No. 15.
Turkey Bigarreau. *Lindl. Guide,* 148.
Bigarreau Tardif. *La Bret. Jard. Fruit.* 2, 50.
Gros Bigarreau. *id. ibid.*
Bigarreau Royal. *id. ibid.*
Italian Heart.
Harrison's Heart.
West's White Heart.
Bigarreau Gros.
Bigarreau de Hollande.

Tree vigorous, strong-growing, and rather upright at first, afterwards spreading. Shoots yellowish-brown, their base sprinkled with a grayish epidermis. Leaves large, oblong, somewhat waved on the margin, rather sharply, but not so deeply serrated as many of this class. Veins beneath prominent, and slightly pubescent. Petioles on the young shoots about an inch and a half in length, moderately strong, and generally furnished with two roundish reniform glands, about a quarter of an inch from the base of the leaf, where two others, nearly round, are usually situated. Flowers middle-sized. Petals oval. Stamens slender, irregular in length. Fruit large, obtusely heart-shaped, slightly flattened along the suture, and a little depressed on the apex. Stalk from one and a half to two inches in length, of moderate thickness. Skin, where shaded, of a clear waxy white, the exposed part bright red, slightly mottled with an amber colour, and gradually fading off toward the pale or shaded part. Flesh firm, pale yellow, or nearly white, sweet, and well flavoured. Stone small for the size of the fruit, roundish-ovate.

Ripens in the end of July, or beginning of August. In the southern parts of the kingdom it will succeed as a standard; in the northern it will require a wall.

This sort is well known to be in extensive cultivation in this country, and it affords the principal supply of pale Cherries for the London market. Its size and beauty being very attractive, and the trees good bearers, it will no doubt continue to be in much estimation with fruit-growers. The only drawback to its superior merit is the hardness of its flesh; the quantity of the latter is however great in consequence of the smallness of the stone.

No reference has been made in making out the above synonyms to any of the sorts described by the continental authors, excepting in the case of those, adopted from La Bretonnerie. None of the sorts described by Duhamel seem to coincide exactly with this; nor has it been observed up to the present time among any of the Parisian collections, excepting in one obtained from Mr. Hervey, of the Luxembourg garden at Paris, under the name of Bigarreau de Hollande.

13. Bigarreau Gros Monstrueux.

Syn. Bigarreau Gros Monstrueux. *Hort. Cat.* No. 29.

The wood, leaves, and flowers, are so similar to those of the Bigarreau, that no specific difference can be stated. The fruit is also of near resemblance in many respects, but is longer in shape, and of a darker colour, firm, white, sweet and rich. Stone middle-sized, oval.

Ripens about the same time as the Bigarreau.

14. Bigarreau Rouge.

Syn. Bigarreau Rouge. *Hort. Cat.* No. 38.

The tree and its fruit bear great resemblance to the Bigarreau. The petals are more obovate and narrower at the claw than those of the latter. Probably it may be the Bigarreau Gros Rouge of Duhamel, Traité des Arbres Fruitiers, p. 163. pl. 2, which certainly

is very near, if not the same; but the tree received in the Garden under that name having proved false, no comparison could in consequence be made, so as to lead to an absolute decision.

15. Bigarreau Napoléon.

Syn. Bigarreau Napoléon. *Hort. Cat.* No. 31. *Bon Jardinier*, 1829, 382. *Baum. Taschenb.* 449.
Bigarreau Lauermann. *Baum. Taschenb.* 449.
Lauermann's Grosse Kirsche. *Sickler*, 366, t. 7. *Christ Pomol.* 280.
Lauermann's Kirsche. *Sickler*, 6, 18. 102. t. 6. *Truchs. Syst.* 292.
Lauermann's Herz Kirsche. *Baum. Taschenb.* 449.
Napoléon's Herz Kirsche. *id. ibid.*

The tree is so similar to the Bigarreau in its wood, leaves, and flowers, that no specific difference can be stated. The fruit is also very like: it seems rather later, somewhat longer in shape, and rather darker in colour. The flesh is equally firm, and the flavour much the same as that of the Bigarreau.

This sort was received in the Garden from M. De Candolle of Geneva under the name of *Bigarreau Napoléon* or *Lauermann*, and by the name now adopted it is much recommended by the French writers. In the *Révue Horticole* of the Bon Jardinier for 1829, and subsequently at its place among the Cherries as above referred to, this sort is noticed as a very fine variety obtained by M. Parmentier of Enghien. It appears, however, that it is not a very new production, for Sickler states that he had it from Hanover under the same name as that by which it is described by Büttner and Christ, and Büttner wrote his account in 1797. The Baron Truchsess obtained it in 1791 from Baars, Master of

Plantations at Herrenhausen, near the city of Hanover, which is the earliest trace of its origin that can be discovered.

16. Bigarreau à Gros Fruit Blanc.

Syn. Bigarreautier à Gros Fruit Blanc. *Duham. Traité*, 165. *Hort. Cat.* No. 26.

Tree vigorous; branches spreading. Shoots yellowish-brown, their lower parts covered in a great measure with a grayish epidermis. Leaves large, oblong, pendent, waved on the margin, coarsely and unequally serrated; much more so than those of the Bigarreau, and they are also more shining above. Petioles about two inches in length, purplish, and having two or more large reniform glands. Flowers large. Petals obovate, somewhat imbricated. Stamens generally shorter than the style. Fruit large, oblong heart-shaped. Stalk upwards of two inches in length, more slender than that of the Bigarreau. Skin shining, pale red next the sun, whitish, or clear pale yellow where shaded. Flesh whitish, rather tender and juicy, tolerably rich, but not so sugary as some others of this class, although it may be recommended as a Cherry of considerable merit.

Ripens toward the end of July.

17. Bigarreau Couleur de Chair.

Syn. Bigarreau Couleur de Chair. *Noisette, Manuel*, 504. *Bon Jardinier*, 1832, 385. *Hort. Cat.* No. 20.

Branches pendulous. Leaves oblong, narrower than those of the Bigarreau, coarsely and irregularly serrated. Veins beneath sharp and prominent. Petioles one and a half or two inches in length, purplish, furnished with two rather large reniform glands, and occasionally one or two others nearly round on the base of the leaf. Fruit nearly the size of the Bigarreau, obtusely heart-shaped, compressed, rather deeply marked by the suture. Stalk about two inches in length, and of moderate thickness. Skin very shining, of a clear waxy white on the shaded side, and marbled with pale and dark red on the exposed part. Flesh whitish, more tender and juicy than the Bigarreau, but scarcely so sweet. Stone middle-sized, oval.

The tree is a good bearer. Ripens in the beginning or middle of July; as it is earlier than the Bigarreau, and has also a more tender flesh, it is worthy of cultivation. In the Bon Jardinier

it is stated to be a variety of the Bigarreau Belle de Rocmond. The difference, it is presumed, is extremely little, judging from the description of that sort by the French authors; but the trees obtained for the Garden under that name having proved false, the similarity could not be satisfactorily ascertained.

18. Bigarreau Tardif de Hildesheim.

Syn. Hildesheimer ganz Späte Weisse Knorpel Kirsche. *Christ Pomol.* 281.

Späte Hildesheimer Marmor Kirsche. *Sickler,* 19. 131. t. 11.

Hildesheimer ganz Späte Knorpel Kirsche. *Truchs. Syst.* 321.

Bigarreau Tardif de Hildesheim. *Baum. Tasch.* 449.

Hildesheimer Späte Herz Kirsche. *id. ibid.*

Bigarreau Blanc Tardif de Hildesheimer. *Hort. Cat.* No. 19.

Tree vigorous; branches spreading. Shoots of a yellowish chestnut colour, partially covered with a grayish epidermis. Leaves very large, oblong, coarsely and irregularly serrated; middle rib and veins beneath very prominent and slightly pubescent. Petioles strong, from one and a half to upwards of two inches in length, furnished with two large reniform glands. Fruit middle-sized, heart-shaped, somewhat flattened. Stalk slender, upwards of two inches in length. Skin mottled, dark red next the sun, and pale yellow mottled with red where less exposed. Flesh firm, pale yellow, and very good when well ripened. Stone large, oval, a little dotted with red.

A good bearer. Ripens in the end of August, or in September: it might even be kept till the beginning of October in some places, but it will not acquire flavour in too cold a situation.

It may be proper to observe that when the tree is young, and growing vigorously in rich soil, the fruit will be very imperfect. This occasioned its being described as an inferior fruit in the Hort. Cat. as above referred to.

It was first brought into notice by Superintendent Cludius of Hildesheim, where it has probably originated. It was received

in the Garden from Dr. DIEL of Nassau Dietz, and from M. De CANDOLLE of Geneva. Its principal merit consists in its very late ripening, as no other Cherry with sweet flesh could be obtained at the time that this would afford a plentiful supply for the dessert.

19. ELTON.

SYN. Elton. *Hooker, Pom. Lond.* t. 7. *Hort. Trans.* 2. 157, 302. *Hort. Cat.* No. 79. *Lindl. Guide*, 151.

Tree very strong and spreading; branches dark brown; shoots speckled with a silvery epidermis on a ground of chestnut brown. Leaves very large, even exceeding those of the Bigarreau, to which they have a close resemblance. Petioles about two inches long, with large reniform glands near the base of the leaf. Flowers large, opening about the second or third week in April. Petals oval, waved, imbricated. Stamens slender. Fruit large, heart-shaped, less obtuse than the Bigarreau, than which it has a longer and more slender stalk, being often two inches and a half, but generally two and a quarter in length. Skin of a pale waxy yellow on the shaded part, mottled and dashed with rich red next the sun. Flesh whitish, rather firm, but not so much so as that of the Bigarreau, very sweet and rich. Stone middle sized, ovate.

Ripens in the beginning or middle of July.

A good bearer, either as a standard or against a wall. It seems as hardy as the Bigarreau, to which it is far superior in regard to richness of flavour.

This very excellent sort was raised by Mr. KNIGHT in 1806 from a seed of the Graffion or Ambrée Cherry, which had been fertilized by the pollen of the White Heart. It was first made known by Mr. HOOKER, in his Pomona Londinensis, and afterwards by communications published at different times in the Transactions of the Society. Its merit has deservedly procured for it the established reputation of superior excellence.

20. Downton.

Syn. Downton. *Hort. Trans.* 5, 262. *Hort. Cat.* No. 74. *Lindl. Guide,* 151.

Branches strong, spreading. Shoots in general much covered with a grayish cuticle. Leaves moderately large, oblong, acuminate, pendulous, slightly waved on the margin, acutely serrated, rather thin in texture. Petioles of middling thickness, about an inch and half in length, having generally two roundish reniform glands, with sometimes other additional ones on the base of the leaf. Flowers large. Petals obovate, imbricated. Stamens slender, irregular in length. Fruit above middle-sized, being scarcely so large as the Elton, bluntly heart-shaped, approaching to round. Stalk about two inches in length, rather slender. Skin pale yellow where shaded, tinged and mottled with red next the sun. Flesh pale amber, tender, juicy and high-flavoured. Stone middle-sized roundish ovate.

Ripens in the beginning of July on a wall, and soon after the May Duke. As a standard it succeeds well, and together with the Elton it deserves to be recommended as superior in every respect to the Red and White Hearts, neither of which are to be compared with the Downton and Elton.

The Downton was raised by Mr. Knight from a seed either of the Waterloo or Elton, but from which is not certain. It was first exhibited to the Society in 1822.

21. Florence.

Syn. Florence. *Hort. Trans.* 2, 229, t. 14. *Hort. Cat.* No. 88. *Lindl. Guide,* 152.

Tree spreading. Shoots yellowish-brown, speckled with a silvery epidermis towards the upper part, and almost closely covered with the same near the base. Leaves rather large, oblong, tapering to the point, somewhat cordate at the base, waved on the margin, not very deeply serrated, rather abundantly pubescent beneath with the veins prominent. Petioles short, scarcely exceeding an inch in length, moderately strong, with reniform glands situated close to the base of the leaf, or sometimes upon it. Flowers large. Petals obovate. Stamens slender. Fruit large, heart-shaped, flat at the base, and obtuse at the apex. Stalk long and slender. Skin pale amber, mottled with red on the shaded side,

and of a bright red on the side next the sun. Flesh firm, but not so hard as that of the Bigarreau, than which it possesses a greater abundance of rich sweet juice. Stone nearly round, and small in proportion to the size of the fruit.

Ripens in the end of July or beginning of August. It requires a wall; and a west, or south-west aspect is well suited for it.

A full account of this excellent late sort, together with a figure, is given in the First Series of these Transactions, as above referred to. It was imported from Florence some years previous to 1816, at which period it was first exhibited to the Society. It is stated to be well known at Florence, where it is in high estimation. The tree does not appear to bear well when young, but when it does begin it is an abundant bearer, well deserving of cultivation, as it comes in late in the season, after the Elton and other good sorts are over.

22. Adam's Crown.

Syn. Adam's Crown. *Brooksh. Pom. Lond.* 8. t. 8. *Hort. Cat.* No. 1.

Shoots vigorous; buds pointed. Leaves large, oblong, coarsely and irregularly serrated. Footstalks purplish red, with large reniform glands in pairs, or sometimes in threes, moderately strong, and about two and a half inches in length. Flowers early, large; petals roundish, of thin texture. Stamens about the length of the pistillum. Fruit middle-sized, bluntly heart-shaped, very little flattened. Skin pale red, mottled. Stalk long, rather deeply sunk at its insertion. Flesh white, soft for a Heart Cherry, juicy and rich.

A very good bearer, and ripens on a wall about the end of June; on a standard about the end of the first week of July.

23. Bowyer's Early Heart.

Syn. Bowyer's Early Heart. *Hort. Cat.* No. 57.

Tree spreading. Shoots bright brown, partially sprinkled with a silvery cuticle; buds large, ovate, pointed. Leaves oblong, tapering to the point, rather coarsely serrated, waved on the margin, with the veins beneath prominent and pubescent. Petioles upwards of

two inches in length, tolerably strong, purplish red. Flowers large, very early; petals roundish obovate, imbricated. Stamens slender, irregular in length. Fruit middle size, obtusely heart-shaped. Stalk nearly two inches in length, bright green. Skin pale amber-coloured, mottled with red. Flesh white, soft, juicy, very sweet and rich. Stone middle-sized oval.

Ripens in the end of June, and being a great bearer, and one of the very earliest pale coloured, or mottled Cherries, it is well deserving of cultivation.

24. White Heart Cherry.

Syn. White Heart. *Hort. Cat.* No. 214.
Dredge's Early White Heart. *ib.*

Trees with spreading branches, forming a round head. Shoots brownish, with a close grayish epidermis thinly scattered over it. Leaves oblong, tapering to the point, sharply serrated. Petioles purplish, about two inches in length, with flattened reniform glands. Flowers large, pendulous, opening early. Petals obovate, not concave, loosely set, and imbricating each other. Fruit middle-sized, heart-shaped. Stalk upwards of two inches in length. Skin whitish where shaded, the rest pale red, mottled with darker when very ripe. Flesh whitish, tolerably tender and sweet. Stone middle-sized, roundish oval, a little flattened.

A moderate bearer, ripening towards the end of July.

The accounts given by various authors of the White Heart Cherry are very contradictory; and the merit of the sort, now that much better ones are known, is not sufficient to deserve to occupy space in reconciling the different statements, or appropriating them to other sorts to which they may probably have reference.

25. Chinese Heart.

Syn. Chinese Heart. *Hort. Cat.* No. 64.

Resembles the White Heart, but is not superior, therefore its cultivation is not to be recommended, and consequently a particular description is unnecessary. It ripens somewhat earlier than the one with which it is now compared, so that its season is that of the Elton, with the quality of which it will bear no competition.

How it derives its name is not known. There is a variety in America called the China Heart, from its mottling being like some of the representations on China ware; but this sort was not received from that quarter. It may have been named however from some similar fancy in regard to its colouring.

26. Churchill's Heart.

Syn. Churchill's Heart. *Hort. Cat.* No. 65.

Shoots yellowish, partially covered with a close grayish epidermis. Leaves large, oblong, tapering to the point, somewhat waved, rather coarsely serrated. Petioles and middle rib with the veins beneath similar to those of the generality of Heart Cherries. Flowers large. Petals oval. Fruit large, heart-shaped. Stalk about two inches in length. Skin on the shaded side of a waxy white colour, the exposed part bright red, mottled with darker, some of the whitish ground-colour shewing through the other. Flesh pale, or yellowish-white, rather firm, sweet, and rich. Stone middle-sized, ovate.

Ripens in July. A very good sort of Heart Cherry, but the tree appears subject to gum.

27. Gascoigne's Heart.

Syn. Gascoigne's Heart. *Switzer*, 140. *Langley*, t. 17, f. 45.
Bleeding Heart. *Miller*, No. 15. *Lindl. Guide*, No. 150.
Brooksh. Pom. Lond. 8, t. 9. *Hort. Cat.* No. 91.
Herefordshire Heart.
Guigne Rouge Hâtive.
Red Heart (of some collections).

Branches spreading. Leaves oblong, narrow, tapering to the point, sharply, but not very deeply serrated; the young leaves, when unfolding in spring are of a particularly reddish-brown colour. Flowers opening late. Petals oblong. Fruit tolerably large, heart-shaped, frequently pointed. Stalk long and slender. Skin bright red, slightly mottled. Flesh white, firm, and sweet. Stone large and ovate.

Ripens early in July, and is but a moderate bearer. Compared with some of the new sorts, this is of little estimation.

28. Guigne Grosse Blanche.

Syn. Guigne Grosse Blanche. *Hort. Cat.* No. 121. *Bon Jard.* 1832, 385. *Baum. Taschenb.* 450.
Grosse Weisse Süss Kirsche. *Baum. Taschenb.* 450.

Fruit above middle size, heart-shaped. Stalk long and slender. Skin reddish, with the yellow shewing through it, so as to mottle it. Flesh yellowish white, firm, juicy, and sweet. Stone rather large, oval, not much flattened.

The tree has great resemblance to the White Heart. The glands on the petioles are however more prominent than in the latter. The flowers are not so large, and open rather earlier.

Ripens about the middle of July, and is a tolerable bearer.

In giving an account of this sort, which was received in the garden from M. De Candolle, of Geneva, and Messrs Baumann, of Bollwiller, no reference has been made to the sort described by Duhamel, p. 161, under the name of Guignier à Gros Fruit Blanc, because he relates its time of ripening to be by the tenth of June, which, after making allowance for the difference of climate, is a month earlier than in this.

29. Tilger's White Heart.

Syn. Tilger's Weisse Herz Kirsche. *Hort. Cat.* No. 202.

Tree vigorous. Shoots brown, speckled with a greyish epidermis. Leaves oblong, not so coarsely serrated as many of this class. Petioles of medium thickness, about an inch and a half in length, furnished with two, and sometimes three, reniform large glands. Flowers middle-sized. Petals oval, flat. Stamens slender. Fruit middle-sized, heart-shaped. Stalk about two inches in length, rather thick. Skin reddish, mottled with amber. Flesh firm, white, with a flavour resembling that of the Bigarreau. Stone middle-sized, ovate.

Ripens about the same time as the Bigarreau, to which it is inferior on account of its smaller size. It was received from Dr. Adrian Diel, of Nassau Dietz.

30. Amber Gean.

Syn. Amber Gean. *Hort. Cat.* No. 92.

Tree vigorous, with the branches diverging. Shoots brownish-yellow, partially covered with a greyish epidermis. Leaves middle-sized, oblong-ovate, tapering to the point, a little waved, but in general nearly flat, of thin substance, with the veins beneath sharp and prominent, though small. Petioles about an inch and a half in length, moderately strong, not much tinged with purple, having two reniform glands, of a yellowish colour, tinged with a little brownish red. Flowers late, middle-sized. Petals obovate. Fruit approaching to middle-sized, obtuse heart-shaped. Stalk of medium length, rather slender. Skin amber-coloured, transparent. Flesh white, tender, sweet, and rich. Stone middle-sized, roundish-oval.

A copious bearer, ripening in the beginning of August. In certain situations this is worthy of cultivation.

31. Hungarian Gean.

Syn. Hungarian Gean. *Hort. Cat.* No. 97.

Wood and leaves having the general character of the Heart Cherries. Petioles strong, from an inch and a half to two inches in length. Flowers middle-sized. Petals oval. Stamens slender, some of them longer than the style, others shorter. Fruit rather small, somewhat heart-shaped, amber-coloured, mottled on the exposed side with red. Flesh whitish, tolerably sweet and tender. Stone large, ovate.

Ripens in July. The White Hungarian Gean, though resembling this, is nevertheless different, being more transparent. This sort cannot be recommended except on account of its hardiness and abundant produce.

32. White Hungarian Gean.

Syn. White Hungarian Gean. *Hort. Cat.* No. 99.

Branches spreading. Shoots yellowish brown. Leaves very large, ovate-oblong, tapering to the apex, sometimes a little cordate at the base, coarsely serrated, and a little waved. Petioles about an inch and a half in length, of a purplish colour, strong, supporting the leaves in a horizontal, or slightly pendulous direction. Glands two, large and reniform. Flowers opening early, middle-sized. Petals roundish, imbricated. Stamens generally shorter than the pistillum. Fruit rather small, roundish heart-shaped. Stalk long and slender. Skin pale yellow, or transparent amber coloured, slightly mottled with red. Flesh white, tender, juicy, sweet, and very pleasant. Stone small, round.

Ripens in the beginning of July. A good bearer.

33. Tobacco Leaved.

Syn. Tobacco Leaved. *Lindl. Guide*, 154.
Four to the Pound. *Hort. Cat.* No. 89.
Quatre à la Livre. *Hort. Trans.* 4, 511. *Noisette, Manuel*, 504.
Bigarreautier Tardif à Feuilles de Tabac. *ib.*
Bigarreautier à Feuilles de Tabac. *Bon. Jard.* 1832, 385.
Bigarreautier à Grandes Feuilles. *Noisette, Jard. Fruit.* 2, 17.
Guignier à Feuilles de Tabac. *Duhamel, ed. nov.*
Bigarreau Tardif. *Baum. Taschenb.* 449.
Kirsche Vier ein Pfund. *Sickler*, 14, 352, t. 18. *Christ, Pomol.* 279. *Truchs. Syst.* 267.
Cerasus Nicotianæfolia.
Cerasus Decumana. *Delaunay.*

Shoots yellowish brown, with a greyish epidermis. Leaves very large, exceeding in this respect all others of the Genus, being often more than twelve inches in length, sometimes even eighteen inches, and from four to six in breadth, of thin texture, somewhat bullated, coarsely serrated, the veins beneath small, but prominent, slightly pubescent. Petioles two or three inches in length, of moderate thickness, but not in proportion to the size of the leaves, which are consequently pendent. Glands, one or two, reniform, middle-sized. Flowers large. Petals loosely set, obovate, imbricated. Fruit scarcely middle-sized, heart-shaped, with sometimes a pointed curved apex. Stalk slender, about two inches and a half in length. Skin pale amber-coloured on the shaded side, and mottled with pale and dark red next the sun. Flesh firm, pale amber-coloured, juicy, sweet, and high flavoured. Stone middle-sized, or somewhat large, roundish-oval.

This sort is an extremely bad bearer, and its fruit possesses but little merit. It does not on any account deserve a place in a fruit collection, consequently it would not have been noticed in this place had it not been the occasion of so much imposition, owing to its bearing the extravagant name of Four to the Pound, and others of like signification.

How it came to have such a name as Four to the Pound is not

known, but whatever may have been the occasion of its being so called, there is certainly no good reason for the continuation of such a designation. About the year 1797, this sort is stated by the German writers as having been then lately obtained from the garden of the Earl of Murray, at Menin, in West Flanders. This led to the supposition of its having been brought thither from England. Sickler, in 1800, took the first opportunity of publishing an account of it, accompanied with a figure of the fruit of its usual size, in the Teutsche Obstgärtner, vol. ii. p. 352. This was done with the view of preventing in some measure the rapidly spreading deceptions respecting it. But still he left a hope that it might in future seasons, and under different treatment, arrive at a much larger size; and an expectation of this nature still continues with some. Experience however has proved, that any material amelioration from either soil, climate, or even age of the tree, is not to be expected. Except as an Arboretum subject, its propagation should be entirely laid aside.

§ III. *Fruit heart-shaped or oval, uniform pale yellow.*

34. White Tartarian.

Syn. White Tartarian. *Hort. Cat.* No. 200.
Fraser's White Tartarian. *Fors. Treat.* 80.
Fraser's White Transparent. *Ib.*

Branches erect. Shoots moderately strong, brown on the exposed side, pale yellowish green where shaded. Leaves middle-sized, oblong, rather pendulous, slightly waved, coarsely serrated, of rather thin substance, with the veins beneath prominent. Petioles short, purplish, with reniform glands of a yellow colour. Flowers middle-sized, opening about the usual season. Petals oblong-obovate, not imbricated. Stamens slender, about the length of the style. Fruit small, roundish, inclining to an obtuse heart shape, the apex slightly depressed; on one side the suture is distinctly marked; the other is regularly convex. Stalk about two inches in length, rather slender, inserted in a small cavity. Skin of an uniform pale transparent yellow. Flesh of nearly the same colour as the skin, tender, juicy and sweet. Stone large, oval.

Ripens about the middle of July, and is a tolerably good bearer.

It has been observed that although the flesh of this and other sorts in the same section is sweet, yet the birds do not readily attack the fruit, owing either to its colour being so much like that of the leaves; or to the fruit having always the appearance of being unripe at some distance.

Said to be a native of the Crimea, and to have been introduced to this country from Russia by the late Mr. John Fraser, along with the Black Tartarian. The *Ambrée à Petit Fruit* is probably the same; at least a tree received from Paris with that name proved so.

35. Lady Southampton's Yellow.

Syn. Lady Southampton's Yellow. *Hort. Cat.* No. 152.
Lady Southampton's Duke.
Lady Southampton's Golden Drop.
Yellow, or Golden.

This sort has been considered the same as the White Tartarian; it is however quite distinct from it. The leaves are of a paler yellowish green; the flowers open earlier, but the fruit ripens later; the flesh is firmer and less transparent. Its flavour is but indifferent. This variety is therefore unworthy of cultivation, especially as a much better substitute is now known in the following sort.

36. Büttner's Yellow.

Syn. Büttner's Wachs Knorpel Kirsche. *Hort. Cat.* No. 62.
Büttner's Gelbe Knorpel Kirsche. *Truchs. Syst.* 361.

Branches spreading. Leaves rather small, oblong, sharply serrated, waved on the margin, of thin texture, on slender petioles with two roundish-reniform yellowish glands situate at or near the base of the leaf. Flowers early, middle-sized. Petals inclining to obovate, slightly imbricated. Stamens irregular in length, generally shorter than the pistillum. Fruit middle-sized, being nearly as large as the May Duke, roundish heart-shaped, slightly compressed; the apex blunt and somewhat depressed. Stalk of medium thickness, about an inch and half in length. Skin of a uniform, clear, waxy, yellowish-white. Flesh of nearly the same colour, firm, but juicy, sweet and rich. Stone middle-sized, roundish-ovate.

A good bearer, ripening about the middle of July. It is a much better fruit than Lady Southampton's Yellow, to which it has a resemblance, and is deserving of cultivation.

Was raised from seed by Büttner of Halle, by whom it was brought into notice about 1803, when it first began to produce fruit.

37. Golden Knob.

Syn. Golden Knob. *Hort. Cat.* No. 105.

Not worthy of cultivation.

§ IV. *Fruit round or oblate, uniform dark red or black.*

38. Merise Petite Ronde.

Syn. Merise Petite Ronde. *Hort. Cat.* No. 165.

This is unworthy of cultivation.

§ V. *Fruit round or oblate, pale yellow and red.*

§ VI. *Fruit round or oblate, uniform pale yellow.*

None of the Cherries as yet proved in the Society's Garden belong to these two sections. They are however retained, as it is very probable that varieties will yet be found referable to them.

Class II. Leaves with the margin plane.

§ VII. *Fruit roundish-heart-shaped, flesh sweet, juice pale.*

39. Late Duke.

Syn. Late Duke. *Pom. Mag.* No. 45. *Lindl. Guide*, 145.
Anglaise Tardive. *Hort. Cat.* No. 76.

Tree vigorous. Branches more spreading than those of the May Duke. Shoots of a yellowish colour on the shaded side, and yellowish brown where exposed. Leaves larger than those of the May Duke, but of thinner texture and more yellowish green beneath.

The flowers resemble those of the sort just mentioned, but open later. Fruit large, obtusely heart-shaped, somewhat compressed. Stalk from one and a half to two inches in length, and of medium thickness. Skin rich shining red. Flesh tender, juicy, amber-coloured, and rich. Stone rather large, roundish-ovate, somewhat compressed.

A great bearer as a standard, ripening in August, a period when no other tender-fleshed Cherries of equal quality are to be had. It would no doubt be advantageous to have it on a west wall, as its richness would be thereby considerably increased.

Whether this sort had formerly existed in England is uncertain. Its name would seem to imply as much, but it has not been found in any of the numerous collections obtained by the Society excepting in one from M. VILMORIN at Paris, who sent it with the name of Anglaise Tardive. Switzer, in his "Fruit Gardener," 1724, mentions two sorts of Duke Cherries, "one in perfection in May and June, and the other in July and August." Probably this may be the same as the latter sort to which he alludes. It is also not improbable but that the Late or Arch Duke may be found not different, when it can be procured correct, but hitherto the May Duke only has been obtained for it in the Garden.

§ VIII. *Fruit roundish heart-shaped, flesh sweet, juice purple.*

§ IX. *Fruit roundish heart-shaped, flesh acid, juice pale.*

None included in these sections at present.

§ X. *Fruit roundish heart-shaped, flesh acid, juice purple.*

40. MORELLO.

SYN. Morello. *Switz. Fruit. Gard.* 140. *Langl. Pom.* t. 16. f. 2. *Lindl. Guide*, 146. *Hort. Cat.* No. 173.
Milan. *Switz. ibid. Langl. ibid. Lindl. ibid.*
Cerise du Nord. *Nois. Jard. Fruit.* 2. 19.
Griotte Ordinaire du Nord. *Nois. Man.* 508.
Small Morello.

Dutch Morello.
Large Morello.
Black Morello.
Late Morello.
Ronalds's Large Morello.
September Weichsel Grosse.

Branches spreading or pendulous. Shoots slender, yellowish brown, partially covered with a close, smooth, grayish epidermis; the two year-old wood is of a blackish chestnut colour Buds very obtuse. Leaves small, somewhat obovate, acuminate, being broadest about two-thirds from the base, slightly serrated; upper surface dark green, peculiarly opaque; for although soft and smooth yet it is not glossy; beneath very slightly pubescent, with the veins flat, and buried in the thick parenchyma as they diminish and approach the margin. Petioles short, being only about half, or three-quarters of an inch in length, moderately strong, supporting the leaves without bending. Flowers large, opening late. Petals broadly obovate, with frequently plaits near the claw, which is longish, and consequently the petals, though large, are scarcely imbricated when well expanded. Stamens strong, many of them as long as the style; hence they form a distinction from the Kentish or Flemish, in which the stamens are all decidedly shorter. Fruit large, obtusely heart-shaped, somewhat compressed in the direction of the suture, with a slight depression on the apex. Stalk about two inches in length, and of moderate thickness. Skin dark red, becoming almost black when suffered to remain long on the tree. Flesh deep purplish red, tender, very juicy and acid, becoming rich however when the fruit can be suffered to hang till it acquire a very dark colour. Stone large oval, compressed, slightly pointed at the apex.

Ripens in July and August, and is well known to bear abundantly, furnishing one of the very best Cherries for preserving. It is also profitable for planting against a north wall, where few other kinds of fruit will come to the same degree of perfection. If, however, it be planted on a southern aspect, or on one inclining to such, and kept on the tree till almost beginning to shrivel, it will then be found very rich, even for the dessert.

This sort has long been well known, and extensively cultivated in this country; it is mentioned by Parkinson in 1629, who says it derives its name from the colour of its juice, being like that of the *Morus* or Mulberry, and probably with this appellation it has come

originally from Holland, or some part of Germany, as various sorts are there called *Maulbeer Kirsche,* and also *Morelle.*

It was received from M. Noisette under the name of Cerise du Nord. He mentions, in his Jardin Fruitier, 2. 19, that it is much cultivated in Brabant, and part of Holland, from whence he brought it to Paris in 1807, and that in the former countries it was generally cultivated against a wall, and most frequently on a northern aspect. At Paris the violent sun was found to affect it too rapidly in its change from the acid state; so that it appears to require being brought more gradually to maturity: therefore Noisette, aware of its importance, has set the example at Paris of planting it against a north wall.

§ XI. *Fruit round or oblate, flesh sweet, juice pale.*

41. Carnation.

Syn. Carnation. *Langl. Pom.* t. 16, f. 3. *Hitt, Treat.* 298. *Brooksh. Pom.* 10, t. 12. *Lindl. Guide,* 142. *Hort. Cat.* No. 63.
Crown Cherry. *Hort. Cat.* No. 71.
Cerise d'Orange. *Knoop, Fruct.* 36 *&* 41.
Cerise Rouge de Bruxelles. *id. ibid.*
Herteginne Kers. *id. ibid.*
Holländische Kirsche. *Sickl. Teutsch. Obst.* 9, 335, t. 15.
Oranien Kirsche. *id. ibid.*
Rothe Oranien Kirsche. *Christ, Pomol.* 293.
Altendorfer Kirsche. *id. ibid.*
English Bearer.
Cerise Nouvelle d'Angleterre.
Cerise de Portugal.
Griotte de Villenes.
Grosse Cerise Rouge Pâle.
Griottier Rouge Pâle.

Tree tolerably vigorous. Branches spreading much, and partly hanging downward.

Leaves very late in expanding, middle-sized, oblong, with a long tapering point, very ragged and coarsely serrated, but not waved on the margin, shining dark green. Petioles moderately strong, and about an inch in length. Flowers opening late, middle-sized. Petals roundish, somewhat imbricated, with a purplish tinge on the back when nearly fading. Stamens strong, shorter than the style. Fruit large, somewhat oblate. Stalk about an inch and half in length, or nearly so. Skin bright light red when well exposed, but where shaded of an amber colour. Flesh pale amber, tender, very juicy and rich. Stone middle-sized, and very round.

Ripens in the end of July. It is to be regretted that it is only an indifferent bearer, and therefore cannot be highly recommended for cultivation, especially as an open standard. Trained on an espalier in a warm situation it is said to bear well, and produce fine fruit, which is however tender of carriage.

This sort has been long cultivated, and has been obtained in the Garden not only from many countries on the continent of Europe, but also from some collections in America. It has been referred by some authors to the Cerise de Hollande or Coularde of Duhamel, Traité des Arbres Fruitiers, p. 184, t. 10 ; but that sort is as early as the May Duke, and in fact the latter has been received under that designation.

42. Belle de Choisy.

Syn. Belle de Choisy. *Nois. Jard. Fruit.* 2, 21. t. 7. *Id. Man.* 506. *Pom. Mag.* No. 42. *Lindl. Guide,* 142. *Hort. Cat.* No. 14. *Bon Jard.* 1832, 387.

Griottier de Palembre. *Audib. Cat.* 1817.

Schöne von Choisy. *Christ, Pom.* 293. *Truchs. Syst.* 452.

Cerise Doucette.

Cerise de la Palembre.

Ambrée de Choisy.

Tree vigorous, more spreading than the May Duke, but less so than the Carnation. Buds short, ovate. Leaves large for this class of Cherries, shining, deep green, coarsely serrated. Petioles strong, scarcely an inch in length, and having generally two roundish glands at the base of the leaf. Flowers large. Petals roundish, plaited, bearing considerable resemblance to those of the Morello. Stamens strong, shorter than the style.

Fruit large, roundish or slightly depressed at the base and apex. Stalk strong, generally bifurcated, and about an inch in length from the separation from the common stalk, which is sometimes more than half an inch in length. Skin transparent, red mottled with amber colour, especially on the shaded side. Flesh amber-coloured, tender, rich and sweet. Stone middle-sized, round.

Ripens in the beginning of July. It succeeds well as a standard, but is not so plentiful a bearer as the May Duke.

This sort is of French origin: it is said to have been found at Choisy near Paris about 1760 by M. Gondouin, Gardener, at that time, to the King of France.

§ XII. *Fruit round or oblate, flesh sweet, juice purple.*

43. May Duke.

Syn. May Duke. *Switz. Fruit Gard.* 139. *Langl. Pomon.* t. 17, f. 3. *Mill. Dict.* No. 3. *Hook. Pom. Lond.* t. 28. *Brooksh. Pom.* 7, t. 1. *Forsyth, Treat.* 75. *Lindl. Guide,* 145. *Hort. Cat.* No. 159.

Cerise Guigne. *Nois. Jard. Fruit.* 2. 22.
Early Duke.
Early May Duke.
Large May Duke.
Morris's Duke.
Morris's Early Duke.
Benham's Fine Early Duke.
Thompson's Duke.
Portugal Duke.
Buchanan's Early Duke.
Anglaise *of some French Collections.*
Royale Hâtive.
De Hollande.
Coularde.

De Hollande à Large Feuilles.
Cerise d'Espagne.
Griotte d'Espagne.
Griotte Précoce.

Trees remarkable for their erect growth. Shoots of a brownish chestnut colour, partially covered with a grayish epidermis. Leaves large for this class of Cherries, ovate-acuminate on the young shoots; but at spurs on the older wood they are broadest about two-thirds from the base, and taper much to the petioles, along which one side of the leaf is more decurrent than the other. Serratures moderately deep for this class. Upper surface shining deep green; the parenchyma thick, and consequently the veins as they approach the margin but little prominent. Petioles strong, about an inch in length on the young shoots, but much longer on the old wood. Glands two, reniform or sometimes roundish. Flowers middle-sized. Petals roundish, or roundish oval, concave, imbricated. Stamens strong, uniformly shorter than the style. Fruit large, roundish. Stalk long and slender. Skin dark-red when well exposed and fully ripened. Flesh red, tender, juicy and rich. Stone middle-sized, roundish-oval.

Ripens in the end of June on walls, and beginning of July on standards. It is generally an abundant bearer, and its excellence for general cultivation is well known. It is also the principal sort used for forcing.

44. Jeffrey's Duke.

Syn. Jeffrey's Royal. *Lindl. Plan of an Orch.* 1796; *Guide,* 144.
Royale. *Duham. Trait.* 1, 193.
Cherry Duke. *id. ibid.*
Jeffrie's Duke. *Hort. Cat.* No. 145.
Jeffrey's Royal. *id.* No. 144.
Jeffrey's Royal Caroon.

Tree of a very compact growth, but having in other respects much affinity to the May Duke. The flowers are somewhat smaller, with narrower and more obovate petals. The fruit forms dense clusters, the buds and spurs being much crowded; it is nearly as large as that of the May Duke, round like the latter, and of the same quality, ripening also about the same period.

Mr. Lindley mentions, in the *Guide to the Orchard,* as

above referred to, that this sort was introduced into notice about fifty years ago by a Mr. Jeffrey, a nurseryman at Brompton Park. It is eligible for planting in situations where only little space can be allowed; but it must in all situations be particularly attended to, otherwise it will produce only blossom buds, which will in that case generally fail either in setting or stoning. In order to prevent this, the shoots should be shortened more or less at the winter pruning, so as to cause a fresh supply in the ensuing season.

45. Willow-leaved May Duke.

Syn. Willow-leaved May Duke. *Hort. Cat.* No. 160.
Cerisier de Hollande à Feuilles de Saule. *Noisette, Manuel,* 505.
Cerisier à Feuilles de Balsamine. *id. ibid.*
Fern-leaved.
Cerisier à Feuilles de Pêcher.

This appears to be a degeneration of the May Duke; for although the leaves are generally narrow, sometimes tolerably entire, but frequently much ragged, yet they are occasionally to be found perfect, and when so they are very like those of the May Duke. The fruit has also a resemblance to that of the latter, but it is so inferior, both in quantity and quality, that the sort does not merit cultivation in a fruit collection.

46. Royal Duke.

Syn. Royale Tardive. *Noisette, Manuel,* 506.
Anglaise Tardive. *id. ibid.*
Anglaise, (*of some French Collections*).

Tree, in regard to its upright growth, similar to the May Duke; the leaves and flowers are also very like those of the latter; the glands are somewhat larger, and more decidedly reniform. Fruit large and very handsome, oblate, which form will readily distinguish it from the May Duke. Stalk moderately thick, about an inch and half in

length, separating from a common peduncle, which is elongated from about a quarter to half an inch, having frequently a leaflet produced on it. Skin deep shining red, becoming dark, but not so black as the May Duke, when very ripe. Flesh reddish, tender, juicy, and very rich. Stone middle-sized, roundish-oval.

An excellent bearer, ripening about the middle of July, after the season of the May Duke and before that of the Late Duke.

Among the collections of Cherries received from France, a great many trees under various names have proved to be the May Duke, as will appear by referring to the synonyms of that sort. Two others have also been received, which, though perfectly distinct from each other, have had promiscuously the same designation. One of these sorts is the Late Duke already described; the other is one to which the above name of Royal Duke is here given in order to prevent the confusion which would have been likely to occur by adopting either of its synonyms, none of which are well agreed upon by the French themselves.

This sort is particularly recommended for cultivation as one of the first excellence.

47. Griotte de Kleparow.

Syn. Griotte de Kleparow. *Baum. Taschenb.* 451.
La Bonne Polonaise. *Hort. Cat.* No. 110.
Kleparower Weichsel. *Baum. Taschenb.* 451.
Pohlnische Weichsel. *id. ibid.*

Tree somewhat spreading. Leaves erect, middle-sized, oblong-ovate, acuminate, flat, slightly serrated, shining dark green. Petioles short and strong. Glands situate on the base of the leaf. Flowers middle-sized. Petals obovate, tapering to the claw. Stamens moderately strong, shorter than the style. Fruit middle-sized, oblate. Stalk of medium thickness, and about two inches in length. Skin dark red. Flesh tender and juicy, dark claret colour, rich and sweet. Stone middle-sized, round.

Ripens toward the end of July.

This sort was received in the garden from Messrs. Baumann, of Bollwiller, who obtained it from Poland, according to the account

given of it in their Taschenbuch. It is also stated to be an abundant bearer, and not liable to be injured by frost in spring. Longer experience, however, is necessary for ascertaining its proper estimation in this country, in regard to its superior hardiness and bearing.

48. Cerise de Soissons.

Syn. Cerise de Soissons. *Baum. Taschenb.* 452. *Hort. Cat.* No. 197.

Branches erect. Leaves elliptical, flat, not deeply serrated. Petioles short and moderately strong. Flowers early. Petals oval, narrow. Fruit in shape and size like the Kentish, but differs in the flesh being red, firmer, and less acid, approaching more to the May Duke, to which however it is inferior.

Ripens in the middle and end of July, and bears tolerably well.

§ XIII. *Fruit round or oblate, flesh acid, juice pale.*

49. Kentish.

Syn. Kentish. *Mill. Dict.* No. 1. *Brooksh. Pomon.* 10, t. 12.
Hort. Cat. No. 146, *with the following Syn.*
Cerisier Muscat de Prague. *Hort. Cat.* No. 176.
Virginian May, *of American Collections.*
Early Richmond. *ib.*
Kentish Red. *ib.*
Pie Cherry. *ib.*
Flemish, (*of many.*)
Common Red.
Sussex.
Cerise de Montmorency.
Montmorency à Longue Queue.
Commune à trochet, (*of some.*)

Trees with slender drooping shoots. Leaves rather small, oval, acuminate, not deeply serrated, bright shining green, veins beneath very flat towards the margin. Petioles short, purplish red, and furnished with two or more yellowish globose glands. Flowers middle-

sized, or rather large. Petals roundish, concave, imbricated. Stamens and style strong, the former uniformly shorter than the latter. Fruit middle-sized, round, or somewhat oblate. Stalk varying in length, from sometimes scarcely an inch to an inch and a half. Skin bright red, occasionally acquiring a dark red colour. Flesh whitish, very juicy and acid. Stone middle-sized, roundish.

Ripens about the middle or towards the end of July. It is an abundant bearer, and much cultivated. The stalk is so firmly attached to the stone that both may be withdrawn together from the fruit, leaving the latter apparently whole; on this account it is well adapted for drying, which is effected by spreading it on hair sieves exposed to the sun, or by placing it in an oven.

It may be proper to observe, that the fruit of the two following varieties are usually sold in the London markets under the name of *Kentish Cherries*, and sometimes the Carnation is also included.

50. Flemish.

Syn. Flemish. *Hort. Cat.* No. 85.
Kentish. *Forsyth, Treat.* 76, *and of many Collections.*
Cerise de Kent. *Duham. Trait.* 1, 180, t. 8.
Montmorency à Gros Fruit. *id. ibid.*
Gros Gobet. *id. ibid.*
Gobet à Court Queue. *id. ibid.*
Double Volgers, (*of the Dutch.*)
English Weichsel. *Mayer, Pom. Franc.* 2, 38, t. 22.
Grosser Gobet. *Kraft. Pom. Austr.* 1, 7, t. 18, f. 1.
Weichselbaum mit Kurzen Stiel. *id. ibid.*
Yellow Ramonde.
Montmorency à Court Queue.
Cerise à Court Queue.
Cerise à Court Queue de Provence.

The fruit is very like the Kentish, except in having a shorter stalk. The trees grow more upright, but are not such abundant bearers. The fruit possesses the same properties as the Kentish.

Its cultivation is now limited, owing to the Kentish being a more abundant bearer.

The Kentish Drier of some collections appears to be the same.

51. English Preserve.

Syn. English Preserve. *Brooksh. Pom.* 10, t. 12. *Hort. Cat.* No. 82.
English Bearer. *Hort. Cat.* No. 80.
Kentish Preserve. *Hort. Cat.* No. 148.

This is at most only a sub-variety of the Kentish; and in fact the trees received in the garden under the above designations have as yet furnished no decisive marks of distinction from the Kentish, either in regard to habit or fruit; being so much alike in every respect in its natural state, it is doubtful whether the fruit possesses any superior property for preserving. As however such may prove to be the case, a separate enumeration is made for the present.

52. Allsaints.

Syn. Allsaints. *Hort. Cat.* No. 4.
Cerise de la Toussaint. *Duham. Trait.* 1. 178, t. 7. *Nois. Jard. Fruit.* 2, 20, t. 6. *Duham. ed. nov.* t. 12.
Cerise Tardive. *Mayer, Pom. Franc.* 2, 238, t. 21. *Kraft, Pom. Austr.* 1, 7, t. 18, f. 2. *Sickl. Teutsch. Obstg.* 14. 93. *Truchs. Syst.* 661.
St. Martin's Amarelle. *Christ. Pomol.* 294.
Monats Amarelle. *id. ibid.*
Weeping Cherry.
Cerise de St. Martin.
Allerheiligen Kirsche.
Martins Weichsel.

Cerisier Pleurant.
Guignier à Rameaux Pendans.

The tree has considerable affinity to the Kentish. The branches are pendulous and slender, having their extremities divided into a sort of loose panicle, flowering and fruiting throughout the season till late. The fruit is small, and oblate. Stalk long. Skin of a bright red colour. Flesh juicy, pale, and acid. Stone small, roundish.

This sort must be considered as being more an object of curiosity than usefulness.

53. Cluster.

Syn. Cluster Cherry. *Langl. Pom.* t. 18, f. 2. *Hort. Cat.* No. 66.
Cerisier à Bouquet. *Duham. Trait.* 1, 176, t. 6. *Nois. Jard. Fruit.* 2, 20, t. 7. *Sickl. Teutsch. Obst.* 21, 126, t. 11. *Mayer, Pom. Franc.* 2, 38. t. 20. *Kraft. Pom. Austr.* 1, 5, t. 13.
Cerisier à Trochet. *Nois. Man.* 505. *Bon Jard.* 1832, 386.
Trauben Amarelle. *Truchs. Syst.* 620.
Bouquet Amarelle. *id. ibid.*
Heck Kirsche.
Büschel Kirsche.
Bouquet Kirsche.
Busch Weichsel.
Flandrische Weichsel.
Chevreuse.

The habit of the tree is very like that of the Kentish. The leaves are also similar. The flowers are somewhat smaller, many of them containing several styles in the same flower, some to the number of ten; but seldom more than four fruits remain after the setting and stoning seasons. On account of this plurality on the

same stalk, it derives its name of Cluster Cherry. Frequently the fruit comes single, and in that case it could not be distinguished from the Kentish.

§ XIV. *Fruit round or oblate, flesh acid, juice purple.*

54. Ostheim.

Syn. Cerise d'Ostheim. *Baum. Taschenb.* 452. *Hort. Cat.* No. 80.
Ostheimer Weichsel. *Sickl. Teutsch. Obstg.* 1, 144. *ib.* 16, 333. *ib.* 6, 224. t. 27. *Truchs. Syst.* 512.
Ostheimer Kirsche. *Christ. Pom.* 286.
Zwerg Kirsche.
Fränkische Wucher Kirsche.

Tree forming a bushy head, with long slender shoots. Leaves small, oval, pointed, slightly serrated, with scarcely any pubescence; upper surface opaque, resembling in this respect the Morello. Petioles very short, supporting the leaves erect, and having generally two somewhat globose glands, situated upon, or close to, the base of the leaf. Flowers smaller than those of the Morello. Petals obovate, concave, slightly imbricated. Stamens more slender than in many others of this class. Fruit middle-sized, globular, slightly compressed. Stalk slender, from an inch and a half to two inches in length. Skin shining, rich dark purplish red. Flesh tender, juicy, dark claret-colour, sub-acid, being sweeter than the Morello, to which it has considerable affinity in many respects; and its fruit may be used for the same purposes. Stone small, roundish ovate.

Ripens in the end of July, and is an abundant bearer.

This sort was sent to the Society by M. Hervey, of the Luxembourg Garden at Paris. According to some of the German authors, it was brought from Italy about the middle of the last century by an officer, and planted at Ostheim on the Rhone, his native place, whence it obtained the name by which it is known and widely cultivated in Germany. Truchsess states its having been brought to Ostheim from the Sierra Morena. At all events it is found very

profitable for planting on an elevated situation, and to succeed in rather poor gravelly soil, such as may be met with on the warm sides of hills. On the Continent they plant it about six feet apart each way, allow it to remain dwarf, keep its wood thin and regular, and as it bears only on the young wood, like the Morello, they cut out a portion of the older wood at the end of six years, by which means a supply of young bearing wood is kept in the tree. According to this method the ground will be entirely covered, and from the great number of roots, a large quantity of nourishment will, of course, be drawn up. The great point to be attended to is to keep the branches *well thinned*, so as to admit plenty of sun and air, otherwise no profitable result will be obtained. It is said to be excellent for preserving, and a plantation of it treated as above-mentioned deserves to be tried.

35. Ratafia.

Syn. Griotte de Ratafia. *Hort. Cat.* No. 113.
Cerisier à Petit Fruit Noir. *Duham. Trait.* 1. 189.
Grosse Cerise à Ratafia. *id. ibid.*
Ratafia Weichsel. *Kraft. Pom. Austr.* 1, 8, t. 19, f. 1. *Christ. Pomol.* 290. *Truchs. Syst.* 571.
Brüsseler Braune. *Truchs. Syst.* 533. *Christ. Pomol.* 288.
Hollandische Weichsel. *Baum. Taschenb.* 451.
Nord Amarelle. *id. ibid.*
Cerise Brune de Bruxelles. *id. ibid.*
Amarelle du Nord. *id. ibid.*
Griotte de Hollande. *id. ibid.*
Florentiner Weichsel. *Christ. Pomol.* 288.
Cerise du Nord Tardive. *Hort. Cat.* 288.
Cerise de St. Martin.
Wild Russian, *of some Collections.*

This sort is so much allied to the Morello, that instead of

giving a particular description, it will be sufficient to state that its leaves are smaller and more tapering towards the base than those of the Morello; the flowers and fruit are also smaller; the latter is more round, but resembling it in colour and quality, except that it is not so rich and fleshy. It also ripens fully later, and will hang a long time on the tree. The fruit has long footstalks proceeding from a common peduncle, often elongated to upwards of an inch in length.

Knoop, in his *Fructologie*, p. 29, states that the best *Ratafia* is made from these *dried Griottes*, pounded in a mortar along with their stones, adding brandy, with a little cinnamon and cloves, and then straining it after being some time in the sun, or near a fire.

56. Wild Morello.

Syn. Wild Morello. *Hort. Cat.* No. 175.

Tree forming a round bushy head. Shoots slender. Leaves small oval, somewhat acuminate, finely serrated, deep green, rather shining above. Petioles very short, with roundish glands. Flowers about the size of those of the Kentish. Petals roundish and imbricated. Fruit scarcely middle-sized, oblate. Stalk of medium length and thickness. Skin blackish, sprinkled with minute brown dots. Flesh purplish, juicy and acid, resembling the Morello in flavour. Stone middle-sized round.

A very abundant bearer, ripening in the beginning of August. It may be worthy of cultivation, for the purposes for which the Morello and Griotte de Ratafia are used; but for a select garden collection it is not deserving of recommendation.

57. Early May.

Syn. Early May. *Miller, Dict.* No. 2. *Forsyth, Treat.* 75. *Lindl. Guide*, 143. *Hort. Cat.* No. 78.
Small May. *Switz. Fruit Gard.* 139.
Cerisier Nain à Fruit Rond Précoce. *Duham. Trait.* 1, 68. t. 3.
Cerise Précoce. *ib. Nois. Jard. Fruit.* 2, 18. t. 7.

Cerisier Nain Précoce. *Nois. Man.* 506.
Griottier Nain Précoce. *Bon Jard.* 1832, 387.
Petite Cerise Rouge Précoce. *Mayer, Pom. Franc.* 2, 36. t. 17.
Amarelle. *id. ibid.*
Weisse Sauer Kirsche. *id. ibid.*
Frühe Kleine Runde Zwerg Weischsel. *Kraft, Pom. Austr.* 1, 4. t. 9.
Kleine Frühe Amarelle. *Sickl. Teutsch. Obstg.* 155, t. 11.
Frühe Zwerg Weichsell. *Baum. Taschenb.* 451. *Truchs. Syst.* 492.
Königliche Amarelle. *Truchs. Syst.* 610.

Tree of dwarfish growth. Shoots slender. Leaves small, lanceolate, irregularly but not deeply serrated, shining deep green. Petioles scarcely an inch in length, rather slender. Flowers expanding early, small. Petals obovate, flat, widely apart, so that if five more were placed in the intervals they would not be much imbricated. Stamens shorter than the style. Fruit small, round, slightly flattened. Stalk slender, about an inch in length. Skin bright red, becoming rich deep red when the fruit is very ripe. Flesh reddish, tender, juicy and acid. Stone small, almost round.

Ripens about the middle of June, and on a wall it colours considerably before that period, and in that state has a handsome appearance; yet as it belongs to the class of acid Cherries, it requires a long time to become fully ripened; so that in fact the May Duke, under similar circumstances, will not be much later in being fit for the dessert.

This sort has been long cultivated in the gardens of this country, as well as those of the Continent. Noisette mentions its being sold in Paris, in bouquets, by the tenth of May. It would then, however, be only coloured, not ripe even in a French climate, for Duhamel states its maturity to be in the end of May or beginning of June. As a standard, it is too tender to succeed; and its room on a wall may now be occupied by sorts equally as early, and of much better quality.

Of the preceding varieties the following will form a very select collection for different purposes and situations.

For Standards,

May Duke,	No. 43
Royal Duke,	46
Late Duke,	39
Black Eagle,	8
Elton,	19
Downton,	20
Knight's Early Black,	6
Black Tartarian,	5
Morello,	40
Kentish,	49

For a South Wall,

Early Purple Guigne,	No. 10
May Duke,	43
Knight's Early Black,	6
Elton,	19
Royal Duke,	46

For a North Wall,

Morello,	No. 40

For an East or West Wall,

May Duke,	No. 43
Royal Duke,	46
Black Tartarian,	5
Elton,	19
Florence,	21
Bigarreau,	12

FOR PRESERVING,

Kentish, - - - -	No. 49
Morello, - - - -	40

THE EARLIEST, are

Early Purple Guigne, -	No. 10
Werder's Early Heart, - -	9
May Duke, - - - -	43
Knight's Early Black, - -	6
Bowyer's Early Heart, - -	23

THE LATEST, are

Late Duke, - - -	No. 39
Florence, - - - -	21
Bigarreau Tardif de Hildesheim,	18
Morello, - - - -	40

XXXVI. *A Note upon the Brabant Bellefleur Apple.* By JOHN LINDLEY, *Ph. D. Assistant Secretary.*

Read February 5, 1833.

THE quality of the Apples in cultivation in this country, has now arrived at so high a degree of excellence, that new or unrecorded varieties are seldom found deserving any special notice. I am, however, disposed to think, that the kind which forms the subject of this communication, is one that is in many respects of very unusual importance, for it combines the properties of some of the best table and kitchen fruits, with great beauty, a hardy constitution, and much durability.

It was received by the Society from the Messrs. SCHNEEVOOGHTS, Nurserymen of Haarlem, under the name of the Brabansche Bellefleur. As the Bellefleurs are generally cider varieties, and of no importance to this country, the tree at first met with little attention. Upon fruiting, however, contrary to expectation, it proved a very handsome sort, in no respect resembling the other Bellefleurs, and was found to keep remarkably well. We have since cultivated it with greater care, and we continue to find it of first rate excellence.

The fruit is of large size, almost round, rather broader at the base than apex, its eye is open, seated in a moderately deep depression, and surrounded with some obtuse plaits. The stalk is short. The skin on the shaded side is yellowish faintly streaked with red, but next the sun it is of a rich deep red, broken into streaks and spots, with a few yellowish-brown dots. The flesh is yellowish, firm, very juicy and heavy, with a rich subacid flavour.

If as a table Apple it cannot be said to rank in the very highest class, for all purposes of the kitchen it stands unrivalled: it ripens in November, and remains sound, firm and juicy till the end of April.

The trees are very healthy, vigourous, and free bearers, flowering late enough to be secured from the destructive spring frosts which so often carry off the crop of Apples near London.

The accompanying Plate is from the pencil of Mrs. Withers.

XXXVII. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year* 1830. *By Mr.* William Beattie Booth, *A. L. S. till June,* 1830; *subsequently by Mr.* Robert Thompson, *Under Gardener in the Fruit Department.*

No alteration has taken place in the manner of keeping this Journal.

JANUARY.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
	F. 1	30.716	32	31	1	Cloudy	30.743	35	32	3	Hazy	30.787	33	32	1	Clear
☽	S. 2	—.589	32	30	2	Ditto	—.561	33	31	2	Ditto & Cold	—.555	34	34	—	Drizzly
	S. 3	—.531	35	35	—	Slight Fog	—.504	37	37	—	Slight Fog	—.443	35	35	—	Wet
	M. 4	—.385	34	34	—	Drizzly	—.299	37	37	—	Ditto	—.317	37	37	—	Dense Fog
	T. 5	—.297	40	40	—	Slight Fog	—.321	42	40	2	Ditto	—.372	30	29	1	Clear
	W. 6	—.412	32	32	—	Ditto	—.295	35	35	—	Cloudy & Do.	—.124	37	37	—	Overcast
	Th. 7	29.876	38	38	—	Cloudy	29.868	43	40	3	Fine	—.019	34	32	2	Clear
	F. 8	30.108	35	32	3	Clear & Cold	30.132	37	35	2	Stormy	—.208	32	32	—	Ditto & Frosty
○	S. 9	—.246	33	32	1	Ditto	—.103	35	32	3	Very Fine	—.039	36	36	—	Stormy
	S. 10	29.820	36	29	7	Stormy & Cold	29.826	36	25	11	Cold but Do.	29.801	34	32	2	Clear & Cold
	M. 11	—.778	32	30	2	Ditto	—.746	36	36	—	Stormy with Snow	—.697	32	29	3	Stormy with Snow
	T. 12	—.859	32	29	3	Ditto	—.954	35	31	4	Ditto	30.004	30	30	—	Ditto
	W. 13	—.958	32	31	1	Do. with Snow	—.845	34	33	1	Ditto	29.889	27	26	1	Ditto
	Th. 14	—.944	28	26	2	Cold & Stormy	—.958	32	29	3	Stormy	—.970	30	30	—	Stormy
	F. 15	—.938	31	30	1	Cloudy	—.915	35	35	—	Foggy	—.946	31	31	—	Ditto
	S. 16	—.970	30	30	—	Foggy & Cold	—.962	31	29	2	Clear & Stormy	—.997	24	20	4	Clear & Cold
☾	S. 17	—.963	25	20	5	Clear & Cold	—.965	25	20	5	Clear & Cold	30.017	24	22	2	Ditto
	M. 18	30 054	23	20	3	Hard Frost	30.029	25	21	4	Hard Frost	29.922	21	21	—	Hard Frost
	T. 19	29.771	19	19	—	Strong Hoar Frost	29.664	28	25	3	Cold & Cloudy	—.520	26	25	1	Stormy with Snow
	W. 20	28.773	35	35		Heavy Rain	28.720	35	35	—	Rainy	—.122	29	29	—	Wet
	Th. 21	29.407	32	31	1	Clear & Cold	29.496	37	32	5	Clear & Cold	—.537	37	37	—	Cloudy
	F. 22	—.640	35	35	—	Stormy & Wet	—.734	36	36	—	Stormy Sleet	—.813	35	35	—	Sleety
	S. 23	—.930	31	31	—	Do. with Sleet	—.943	34	34	—	Ditto	30.088	34	34	—	Ditto
●	S. 24	30.317	37	37	—	Dull & Cloudy	30.352	40	35	5	Dull & Cloudy	—.097	36	35	1	Clear
	M. 25	—.352	34	31	3	Fine	—.388	40	38	2	Ditto	—.427	35	35	—	Dull and Hazy
	T. 26	—.372	35	35	—	Drizzly	—.305	39	39	—	Foggy	—.188	34	34	—	Ditto
	W. 27	29 935	36	36	—	Sleet	29.840	39	39	—	Rainy	29.939	35	35	—	Drizzly
	Th. 28	30.112	34	34	—	Dull & Cloudy	30.168	36	35	1	Dull & Cloudy	30.229	35	35	—	Sleet
	F. 29	—.214	35	35	—	Drizzly	—.202	37	35	2	Cloudy	—.188	31	30	1	Clear & Cold
	S 30	—.174	29	28	1	Cloudy	—.138	33	33	—	Do. and Wet	29.995	30	30	—	Wet
☽	S. 31	—.171	23	21	2	Cold & Frosty	—.149	26	22	4	Cold & Frosty	30.026	24	22	2	Cold & Frosty
		30.052	32.09	30.87	1.22		30.036	34.93	32.77	2.16		30.041	31.67	31.	.67	

JANUARY.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.
1	35	28	39	27	NE	Little		
2	36	30	38	27	——	Ditto		
3	37	32	39	30	E	Ditto		.25
4	37	33	38	32	——	Ditto		
5	43	25	47	20	N	Ditto		.04
6	38	32	39	27	SW	Brisk		
7	+45	32	50	26	NW	Ditto		
8	38	28	41	20	N	Ditto		
9	37	32	42	24	——	Ditto		
10	41	30	49	26	NE	Ditto		
11	37	29	43	27	——	Ditto		
12	35	28	37	25	N	Stormy		
13	34	23	35	19	——	Ditto		
14	32	29	32	24	NE	Brisk		
15	35	27	37	25	E	Ditto		
16	31	15	32	9	NE	Ditto		
17	26	20	42	13	——	Ditto		
18	25	—10	30	—7	SW	Little		
19	32	25	33	22	N	Stormy		
20	35	28	35	24	NE	Brisk		.65
21	38	32	40	27	——	Ditto		
22	37	30	35	28	——	Ditto		.16
23	36	31	38	30	SE	Little		.03
24	42	30	47	24	E	Ditto		
25	41	31	+52	29	NE	Ditto		
26	39	32	37	30	N	Ditto		
27	39	32	39	30	NE	Ditto		.21
28	37	34	37	30	N	Ditto		.09
29	37	28	38	25	W	Brisk		
30	33	20	33	15	N	Ditto		.11
31	27	18	39	14	NE	Ditto		
	36.	27.5	39.12	23.74			1.54	

Remarks.

The frost which commenced in the latter part of the preceding month, continued with more or less severity during the whole of the present one; and a colder January has not been witnessed about London for many years. The greatest cold was on the 18th; it was followed by a heavy gale on the 19th, accompanied by a fall of snow to the depth of 4 inches. In the country the snow was in many places much deeper, and the coaches were in consequence detained by it. Three other gales were experienced, viz. on the nights of the 7th, 10th, and 21st. The last dissolved the greater part of the snow of the 19th, and up to the end of the month it was generally cold and cloudy, with sleet showers on the 22nd, 23rd, 27th, 28th, and 30th. On the night of the 1st, the Barometer attained a greater height than had been before registered at the Garden.

Mean Pressure from the 3 daily observations	30.043 inches.
—— Temperature ..... Ditto	32°.89
—— Dew Point ..... Ditto	31°.54
—— Degree of Dryness ... Ditto	1°.35
—— Degree of Moisture .. Ditto	.954
—— Force of Vapour .... Ditto	0.212 inch.
Least observed degree of Moisture	.685
Maximum Temperature in the Shade	45°
Minimum Temperature in ditto	10°
Maximum Temperature in the Sun	52°
Minimum of Terrestrial Radiation	7°
Mean Temperature of external Air	31°.75

WINDS.

North.....	8 days.	N. East.....	13 days.
South.....	0 ..	S. East	1 ..
East.....	5 ..	S. West.....	2 ..
West	1 ..	N. West.....	1 ..
			31 days.

Amount of Rain..... 1 54 inches.

FEBRUARY.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
M.	1	29.965	22	20	2	Clear & Frosty	29.948	26	21	5	Clear & Frosty	29.862	25	20	5	Clear & Cold
T.	2	—.877	20	18	2	Ditto	—.923	22	18	4	Ditto	—.925	18	16	2	Ditto
W.	3	—.939	21	18	3	Ditto	—.932	23	20	3	Ditto	—.963	20	18	2	Ditto
Th.	4	—.930	27	20	7	Ditto	—.862	30	25	5	Ditto	—.831	28	27	1	Ditto
F.	5	—.825	21	17	4	Ditto	—.843	24	17	7	Ditto	—.773	19	17	2	Ditto
S.	6	—.672	16	12	4	Ditto	—.686	22	12	10	Cloudy & Cold	—.666	20	17	3	Cloudy & Do.
○ S.	7	—.508	39	38	1	Cloudy	—.445	40	40	—	Wet	—.451	45	45	—	Drizzly
M.	8	—.472	47	44	3	Fine	—.648	48	40	8	Fine and Clear	—.723	40	40	—	Cloudy
T.	9	—.381	47	47	—	Rainy	—.622	46	40	6	Ditto	—.672	37	36	1	Clear and Fine
W.	10	—.849	35	35	—	Overcast	—.951	45	39	6	Ditto	30.129	29	27	2	Ditto
Th.	11	30.227	32	32	—	Ditto & Foggy	30.240	42	38	4	Ditto	—.252	39	39	—	Cloudy
F.	12	—.188	37	35	2	Fine	—.178	45	36	9	Ditto	—.176	34	32	2	Ditto
S.	13	—.208	34	32	2	Ditto	—.172	43	39	4	Ditto	—.171	29	29	—	Foggy
S.	14	—.177	32	32	—	Foggy	—.175	37	36	1	Foggy & Cold	—.211	35	35	—	Ditto
☾ M.	15	—.368	33	33	—	Ditto & Cold	—.372	38	36	2	Ditto	—.393	31	31	—	Ditto
T.	16	—.401	38	35	3	Ditto	—.298	36	33	3	Ditto	—.127	30	30	—	Ditto & Cold
W.	17	—.010	29	29	—	Dense Fog	29.883	34	30	4	Ditto	29.792	31	29	2	Clear & Cold
Th.	18	29.692	36	32	4	Clear and Cold	—.785	37	32	5	Clear and Cold	—.813	33	30	3	Ditto
F.	19	—.843	35	34	1	Do. with Snow	—.828	40	33	7	Ditto	—.849	29	28	1	Ditto
S.	20	—.912	32	24	8	Clear & Cold	—.862	45	35	10	Fine	—.824	28	28	—	Clear and Fine
S.	21	—.645	45	40	5	Very Fine	—.583	43	43	—	Wet	—.482	37	37	—	Wet
M.	22	—.889	35	33	2	Frosty & Fine	—.885	47	46	1	Overcast	—.668	45	45	—	Ditto
● T.	23	—.717	48	48	—	Wet	—.791	51	51	—	Drizzly	—.791	48	48	—	Ditto
W.	24	—.985	50	50	—	Cloudy	30.122	57	50	7	Fine	30.164	50	49	1	Cloudy
Th.	25	30.207	49	47	2	Fine	—.213	55	53	2	Very Fine	—.255	50	50	—	Ditto
F.	26	—.221	50	49	1	Ditto	—.210	55	52	3	Cloudy	—.162	49	49	—	Overcast
S.	27	—.110	48	48	—	Cloudy	—.074	52	44	8	Fine	29.986	50	50	—	Ditto
S.	28	—.056	50	45	5	Fine	—.092	56	46	10	Very Fine	30.109	48	48	—	Drizzly
		29.938	36.	33.82	2.18		29.950	40.68	35.89	4.78		29.936	34.89	33.92	.96	

FEBRUARY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	26	20	35	11	NE	Stormy		The early part of this month was stormy and cold, with no appearance of the frost abating or the snow going away: the latter being about 2 inches deep, was of essential service in protecting from the severity of the frost many plants that otherwise would have suffered by it. The coldest night during the season was the 5th. This was succeeded on the 7th, by one of the most rapid thaws we remember to have seen: by night not a vestige of frost or snow remained, and the roads were almost impassable. The following days up to the 13th were fine and seasonable; from that period to the 21st was cold and foggy; afterwards very seasonable and mild weather prevailed.
2	25	18	38	14	——	Brisk		
3	28	19	36	13	——	Ditto		
4	30	12	37	5	——	Stormy		
5	27	—10	43	—4	N	Brisk		
6	26	15	27	14	NE	Ditto		
7	49	37	49	35	W	Ditto	.06	
8	49	38	57	38	——	Strong	.51	
9	47	32	47	26	SW	Brisk	.02	
10	46	25	57	15	——	Ditto		
11	46	31	52	27	W	Ditto		
12	45	28	56	22	S	Ditto		
13	44	26	57	23	SE	Little		
14	37	31	38	31	——	Ditto		
15	40	29	40	24	NE	Ditto		
16	39	28	39	26	——	Ditto		
17	37	30	47	22	W	Brisk		
18	40	25	51	20	N	Ditto		
19	40	22	47	11	W	Ditto		
20	46	27	57	17	——	Ditto		
21	45	28	59	20	——	Ditto	.12	
22	48	36	48	32	——	Ditto	.18	
23	52	48	52	43	SW	Ditto	.09	
24	58	48	61	42	W	Little		
25	+59	47	+72	39	——	Brisk		
26	56	45	67	38	——	Little	.33	
27	57	50	66	45	SW	Ditto		
28	58	45	68	40	NE	Ditto		
	42.85	30.35	50.10	24.89			1.31	

Mean Pressure from the 3 daily observations 29.941 inches.
—— Temperature ..... Ditto ..... 37°.19
—— Dew Point ..... Ditto ..... 34°.54
—— Degree of Dryness .... Ditto ..... 2°.64
—— Degree of Moisture .. Ditto ..... .918
—— Force of Vapour .... Ditto ..... 0.236 inch.
Least observed degree of Moisture ..... .715
Maximum Temperature in Shade ..... 59°
Minimum Temperature in ditto ..... 10°
Maximum Temperature in the Sun ..... 72°
Minimum of Terrestrial Radiation..... 4°
Mean Temperature of External air ..... 36°.6

WINDS.

North.....	2 days.	N. East.....	8 days
South.....	1 ..	S. East.....	2 ..
East.....	0 ..	S. West.....	4 ..
West.....	11 ..	N. West.....	0 ..

28 days.

Amount of Rain ..... 1.31 inch.

MARCH.

	1830.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
☽	M.	1	30.380	47	46	1	Cloudy	30.388	54	47	7	Fine	30.407	49	48	1	Fine
	T.	2	—.447	50	45	5	Very Fine	—.435	52	48	4	Ditto	—.437	47	45	2	Ditto
	W.	3	—.445	49	45	4	Ditto	—.425	56	40	16	Very Fine	—.342	36	33	3	Ditto
	Th.	4	—.245	36	35	1	Ditto, Hazy	—.074	50	36	14	Ditto	—.040	35	34	1	Do. & Frosty
	F.	5	29.973	37	34	3	Very Fine	29.977	52	46	6	Ditto	—.046	35	35	—	Slight Fog
	S.	6	30.050	42	40	2	Slight Fog	30.018	52	42	10	Ditto	—.034	33	33	—	Ditto
	S.	7	—.065	40	35	5	Very Fine	—.038	42	34	8	Ditto	—.082	34	32	2	Fine
	M.	8	—.068	39	36	3	Ditto	—.018	51	39	12	Ditto	29.910	43	41	2	Ditto
○	T.	9	29.708	42	42	—	Drizzly	29.616	48	48	—	Drizzly	—.683	46	46	—	Drizzly
	W.	10	—.686	46	45	1	Cloudy	—.679	54	44	10	Very Fine	—.708	51	48	3	Fine
	Th.	11	—.712	52	50	2	Very Fine	—.881	57	48	9	Ditto	30.037	52	50	2	Ditto
	F.	12	30.139	52	47	5	Ditto	30.021	56	47	9	Ditto	29.938	50	47	3	Stormy
	S.	13	—.081	47	44	3	Ditto	—.305	53	41	12	Stormy Wind	30.331	40	38	2	Fine
	S.	14	—.076	49	42	7	Ditto	—.007	52	35	17	Very Fine	29.726	40	39	1	Ditto
	M.	15	29.649	45	45	—	Overcast	29.498	50	50	—	Stormy w^h Showers	—.538	37	37	—	Stormy
	T.	16	—.824	50	44	6	Stormy	—.743	52	40	12	Hail Showers	—.874	40	38	2	Fine
☾	W.	17	—.910	44	40	4	Fine	—.973	56	47	9	Fine	30.076	48	47	1	Ditto
	Th.	18	30.158	50	49	1	Ditto	30.228	56	48	8	Ditto	—.254	49	47	2	Ditto
	F.	19	—.264	50	46	4	Cloudy & Windy	—.252	54	40	14	Cloudy & Windy	—.187	45	44	1	Overcast
	S.	20	—.151	48	46	2	Fine	—.149	54	44	10	Fine and Do.	—.259	46	46	—	Ditto
	S.	21	—.315	50	47	3	Very Fine	—.385	58	43	15	Very Fine	—.347	50	47	3	Ditto
	M.	22	—.196	49	47	2	Ditto	—.170	50	42	8	Cloudy & Windy	29.936	47	47	—	Ditto
	T.	23	—.081	47	43	4	Ditto	—.075	52	39	13	Ditto	30.063	49	47	2	Fine
●	W.	24	—.187	53	51	2	Ditto	—.212	57	51	6	Very Fine	—.282	46	44	2	Ditto
	Th.	25	—.388	46	44	2	Ditto	—.393	62	51	11	Ditto	—.466	47	44	3	Ditto
	F.	26	—.567	51	46	5	Ditto	—.567	67	45	22	Ditto	—.614	45	41	4	Very Fine
	S.	27	—.611	44	40	4	Ditto	—.547	70	47	23	Ditto	—.545	49	47	2	Ditto
	S.	28	—.486	47	41	6	Ditto	—.404	63	43	20	Ditto	—.327	45	44	1	Ditto
	M.	29	—.239	43	40	3	Ditto	—.123	67	51	16	Ditto	—.093	45	45	—	Cloudy
	T.	30	—.041	42	40	2	Ditto	—.063	63	50	13	Ditto	29.942	44	42	2	Fine
☽	W.	31	29.824	48	44	4	Very Fine	29.730	62	49	13	Hazy	—.747	40	40	—	Slight Rain
			30.128	46.29	43.19	3.10		30.109	55.54	44.35	11.19		30.105	43.96	42.45	1.51	

MARCH.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	54	47	66	43	NE	Brisk		This month was, upon the whole, remarkably favourable for the operations of the Garden, which were retarded by the severe winter. The fogs at night, although somewhat chilly, were very beneficial, and except a few nights at the beginning and near the end of the month, the minimum temperature was not lower than 38°. The night of the 12th was very boisterous. The amount of rain was unusually small.
2	52	45	64	41	——	Ditto		
3	58	32	66	22	E	Ditto		
4	50	32	63	—21	NE	Ditto		
5	54	—31	71	23	E	Ditto		
6	54	32	67	22	——	Ditto		
7	45	32	57	26	SE	Little		
8	52	42	67	37	S	Ditto		
9	48	45	48	43	——	Ditto	.09	
10	55	50	68	45	NW	Ditto		
11	57	49	67	38	——	Brisk		
12	59	40	70	35	W	Stormy		
13	54	37	67	31	SW	Ditto		
14	53	40	66	34	——	Brisk		
15	50	36	54	31	S	Ditto	.07	
16	52	38	69	33	SW	Ditto		
17	57	47	64	42	W	Ditto		
18	57	48	60	45	S	Stormy		
19	55	48	62	40	SW	Ditto	.02	
20	55	39	68	35	——	Brisk		
21	60	47	80	40	——	Ditto		
22	51	39	63	31	S	Ditto		
23	54	48	69	44	W	Ditto		
24	57	38	65	33	——	Little		
25	65	40	79	32	SW	Ditto		
26	73	34	91	28	——	Ditto		
27	+75	32	+97	24	——	Ditto		
28	68	33	82	25	NE	Ditto		
29	72	34	86	28	SE	Ditto		
30	66	35	82	27	E	Ditto		
31	62	33	78	31	——	Brisk		
	57.22	39.45	69.54	33.22			0.18	

Mean Pressure from the 3 daily observations 30.114 inches.
—— Temperature ..... Ditto ..... 48°.59
—— Dew Point ..... Ditto ..... 43°.33
—— Degree of Dryness ... Ditto ..... 5°.26
—— Degree of Moisture .. Ditto ..... .836
—— Force of Vapour ..... Ditto ..... 0.318 inch.
Least observed degree of Moisture ..... .472
Maximum Temperature in the Shade .... 75°
Minimum Temperature in ditto ..... 31°
Maximum Temperature in the Sun ..... 97°
Minimum of Terrestrial Radiation ..... 21°
Mean Temperature of External Air ..... 48°.33

Winds.

North.....0 days.	N. East.....4 days.
South .....5 ..	S. East.....2 ..
East .....5 ..	S. West .....9 ..
West.....4 ..	N. West.....2 ..

31 days.

Amount of Rain..... 0.18 inch.

APRIL.

1830.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
Th.	1	29.757	36	36	—	Sleet	29.763	40	40	—	Wet	29.747	36	36	—	Stormy & Wet
F.	2	—.626	37	37	—	Stormy Rain	—.567	38	38	—	Stormy Rain	—.381	36	36	—	Ditto
S.	3	—.516	37	37	—	Do. & Drizzly	—.620	40	38	2	Cloudy & Cold	—.981	30	30	—	Clear & Cold
S.	4	30.050	35	33	2	Clear & Cold	30.160	43	35	8	Clear & Cold	30.283	31	31	—	Ditto
M.	5	—.243	36	33	3	Ditto	- .152	48	38	10	Very Fine	—.052	34	32	2	Ditto
T.	6	29.823	38	33	5	Ditto	29.828	52	42	10	Ditto	29.886	45	42	3	Fine
W.	7	—.922	49	45	4	Cloudy	—.889	59	46	13	Ditto	—.840	47	45	2	Ditto
⊙ Th.	8	—.664	58	56	2	Very Fine	—.622	65	58	7	Ditto	—.647	53	53	—	Stormy with much Lightning.
F.	9	—.443	58	55	3	Ditto	—.421	64	55	9	Ditto	—.372	50	50	—	Showery
S.	10	—.506	58	55	3	Ditto	—.564	55	54	1	Showery	—.585	42	42	—	Ditto
S.	11	—.671	49	47	2	Ditto	—.698	58	52	6	Ditto	—.728	50	49	1	Clear & Fine
M.	12	—.780	52	49	3	Ditto	—.504	56	55	1	Showery	—.563	47	45	2	Ditto
T.	13	—.706	51	50	1	Fine	—.840	58	47	11	Fine	—.952	42	40	2	Ditto
W.	14	30.040	50	45	5	Ditto	30.014	60	45	15	Very Fine	—.943	50	50	—	Cloudy
Th.	15	29.812	54	54	—	Drizzly	29.713	63	60	3	Showery	—.688	53	53	—	Ditto
☾ F.	16	—.669	55	54	1	Cloudy	—.699	62	59	3	Ditto	—.748	54	53	1	Ditto
S.	17	—.696	57	55	2	Ditto	—.654	60	52	8	Cloudy	—.772	48	48	—	Showery
S.	18	—.859	52	48	4	Very Fine	—.866	60	42	18	Very Fine	—.809	58	55	3	Ditto
M.	19	—.694	53	51	2	Cloudy	—.584	51	51	—	ThunderShowers	—.836	43	43	—	Fine
T.	20	—.711	52	52	—	Showery	—.660	60	52	8	Showery	30.014	45	44	1	Ditto
W.	21	—.923	55	55	—	Stormy	—.812	55	53	2	Stormy	29.623	51	51	—	Stormy
● Th.	22	—.587	54	52	2	Do. & Cloudy	—.542	59	59	—	Do. with Rain	—.415	53	53	—	Do. with Rain
F.	23	—.322	56	56	—	Do. with Rain	— 267	57	57	—	Ditto	—.344	50	50	—	Ditto
S.	24	—.246	53	50	3	Stormy	—.433	58	45	13	Fine wth Showers	—.761	45	41	4	Fine
S.	25	30.014	50	44	6	Very Fine	30.096	58	40	18	Very Fine	30.203	45	42	3	Very Fine
M.	26	—.231	57	54	3	Ditto	—.226	64	49	15	Ditto	—.240	45	42	3	Ditto
T.	27	—.251	52	46	6	Ditto	— 216	66	43	23	Ditto	—.181	51	44	7	Ditto
W.	28	—.135	60	52	8	Ditto	—.063	72	48	24	Ditto	—.151	52	47	5	Ditto
D Th.	29	—.029	58	54	4	Ditto	29 935	75	55	20	Ditto	29.927	55	53	2	Ditto
F.	30	29.877	54	45	9	Ditto	—.907	73	56	17	Ditto	—.947	55	51	4	Ditto
		29.793	50.53	47 76	2.76		29.777	57.63	48.80	8.83		29.820	46.5	45.	1.5	

APRIL.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	41	35	41	34	E	Brisk	0.29	During the first part of the month the weather was cold and stormy, and on the night of the 4th the thermometer fell to 8° below the freezing point, so that many plants which the fine weather of the preceding month had brought forward, were either killed or much injured by it. Nearly all the flowers of the Glycine sinensis were killed although the plant was covered with a screen of thin canvas. On the 7th there was much lightning, and on the 12th some thunder with a heavy shower of hail. The nights of the 21st and 23rd, and the morning of the 24th were very boisterous and stormy.
2	39	36	39	35	NE	Ditto	1.19	
3	41	27	60	19	E	Little		
4	44	—24	74	—12	S	Ditto		
5	52	26	73	15	——	Ditto		
6	56	42	75	37	SW	Ditto		
7	60	43	77	35	——	Brisk		
8	70	44	88	37	S	Little		
9	67	44	84	41	——	Brisk	.28	
10	57	40	76	33	SW	Little	.04	
11	58	43	72	38	——	Ditto	.17	
12	59	45	70	36	NW	Ditto	.12	
13	58	36	76	28	W	Ditto		
14	63	49	82	44	SW	Ditto		
15	63	51	73	49	S	Brisk	.13	
16	63	54	78	52	W	Ditto	.01	
17	62	43	75	38	——	Ditto	.08	
18	64	44	91	36	SW	Little		
19	51	39	82	37	W	Brisk		
20	61	41	68	35	SW	Ditto	.12	
21	59	50	69	48	——	Stormy	.03	
22	59	53	60	50	W	Ditto	.23	
23	58	49	60	47	NW	Ditto	.15	
24	58	38	73	30	SW	Boisterous		
25	62	42	85	37	SE	Brisk		
26	66	36	88	28	E	Ditto		
27	68	40	94	31	——	Ditto		
28	73	48	96	40	——	Ditto		
29	76	46	98	38	SE	Ditto		
30	+77	50	+102	43	——	Ditto		
	59.5	41.93	75.96	36.1			2.84	

Mean Pressure from the 3 daily observations 29.796 inches.
—— Temperature ..... Ditto ..... 51°.55
—— Dew Point ..... Ditto ..... 47°.18
—— Degree of Dryness ... Ditto ..... 4°.36
—— Degree of Moisture .. Ditto ..... .869
—— Force of Vapour. .... Ditto ..... 0.366 inch.
Least observed degree of Moisture ..... .457
Maximum Temperature in Shade ..... 77°
Minimum Temperature in ditto ..... 24°
Maximum Temperature in the Sun ..... 102°
Minimum of Terrestrial Radiation ..... 12°
Mean Temperature of External Air..... 50°.72

WINDS.

North.....0 days.	N. East.....1 days.
South.....5 ..	S. East.....3 ..
East.....5 ..	N. West.....2 ..
West.....5 ..	S. West.....9 ..

30 days.

Amount of Rain..... 2.84 inches.

MAY.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
	S. 1	29.997	57	48	9	Very Fine	29.988	62	44	18	Fine	30.033	49	45	4	Very Fine
	S. 2	30.150	58	49	9	Ditto	30.141	65	45	20	Very Fine	—.151	47	42	5	Ditto
	M. 3	—.233	55	44	11	Ditto	—.202	62	47	15	Ditto	—.192	47	43	4	Ditto
	T. 4	—.174	50	43	7	Ditto	—.151	65	48	17	Ditto	—.107	51	48	3	Ditto
	W. 5	—.098	53	48	5	Ditto	—.078	71	49	22	Ditto	—.028	59	58	1	Cloudy
	Th. 6	29.896	60	52	8	Ditto	29.873	80	57	23	Ditto	29.743	59	52	7	Very Fine
○	F. 7	—.634	62	57	5	Ditto	—.559	79	58	21	Ditto	—.630	56	52	4	Ditto
	S. 8	—.595	57	51	6	Ditto	—.483	65	65	—	Heavy Rain	—.425	57	57	—	Very Fine
	S. 9	—.344	54	54	—	Cloudy	—.316	56	56	—	Ditto	—.344	50	50	—	Drizzly
	M. 10	—.408	52	52	—	Ditto	—.559	55	55	—	Showery	—.666	43	43	—	Ditto
	T. 11	—.672	49	47	2	Stormy	—.754	58	48	10	Stormy	—.790	45	45	—	Cold&Stormy
	W. 12	—.814	48	48	—	Cloudy	—.849	61	55	6	Fine	—.879	46	45	1	Stormy
	Th. 13	30.028	50	47	3	Fine	30.063	50	44	6	Cloudy	30.163	44	42	2	Do. & Cold
	F. 14	—.204	48	46	2	Ditto	—.150	65	47	18	Very Fine	—.156	47	45	2	Fine
☾	S. 15	—.237	52	47	5	Very Fine	—.271	65	48	17	Ditto	—.277	53	50	3	Very Fine
	S. 16	—.328	50	43	7	Ditto	—.309	72	50	22	Ditto	—.315	57	55	2	Ditto
	M. 17	—.251	55	51	4	Ditto	—.177	75	57	18	Ditto	—.138	60	55	5	Ditto
	T. 18	—.024	60	51	9	Ditto	29.940	75	57	18	Ditto	29.953	55	51	4	Ditto
	W. 19	29.905	60	52	8	Ditto	—.888	70	50	20	Ditto	—.972	57	51	6	Ditto
	Th. 20	—.958	58	52	6	Ditto	—.939	70	58	12	Ditto	—.917	53	50	3	Ditto
	F. 21	—.824	59	56	3	Ditto	—.743	68	50	18	Ditto	—.801	52	50	2	Ditto
●	S. 22	—.809	58	58	—	Cloudy	—.897	65	58	7	Fine	—.745	51	48	3	Fine
	S. 23	—.922	60	55	5	Very Fine	—.824	70	66	4	Overcast	—.697	55	55	—	Cloudy
	M. 24	—.576	62	61	1	Cloudy	—.731	70	54	16	Very Fine	—.723	57	54	3	Fine
	T. 25	—.563	58	54	4	Stormy	—.594	65	65	—	Stormy	—.465	55	55	—	Wet
	W. 26	—.445	57	55	2	Do. Showers	—.442	64	64	—	Ditto	—.506	52	52	—	Ditto
	Th. 27	—.532	56	51	5	Fine	—.558	60	60	—	Showery	—.688	55	53	2	Fine
	F. 28	—.833	55	53	2	Showery	—.920	61	61	—	Ditto	30.031	52	52	—	Ditto
D	S. 29	30.083	53	45	8	Very Fine	30.087	63	45	18	Very Fine	29.926	51	51	—	Wet
	S. 30	29.819	58	58	—	Wet	29.824	60	60	—	Showery	—.841	51	51	—	Showery
	M. 31	—.900	54	52	2	Fine	—.954	62	55	7	Fine	30.001	56	54	2	Fine
		29.879	55.41	50.96	4.45		29.879	65.45	54.06	11.38		29.880	52.32	50.12	2.19	

MAY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	65	44	87	36	SE	Brisk		The first week of this month was very fine through the day but cold at night. On the 8th there was very heavy rain at noon; and it was showery to the 10th. The night of the 11th was cold and stormy, and the two succeeding days were cloudy and cold with northerly winds. From this to the 20th the weather was fine and warm. The remainder of the month was generally wet. The 25th was **stormy with heavy thunder showers.**
2	67	36	90	27	NW	Little		
3	64	35	89	—26	E	Brisk		
4	66	41	92	33	——	Ditto		
5	74	51	+105	40	SE	Ditto	0.03	
6	+81	54	103	50	——	Ditto		
7	79	45	98	38	——	Ditto		
8	67	49	86	45	S	Little	.45	
9	56	45	56	42	——	Brisk	.18	
10	56	44	65	41	N	Ditto	.10	
11	51	41	61	34	NE	Ditto		
12	62	44	71	40	NW	Ditto		
13	53	—35	57	28	N	Ditto		
14	65	45	83	40	SW	Little		
15	67	39	88	32	W	Ditto		
16	72	49	90	43	SW	Brisk		
17	78	50	98	44	W	Ditto		
18	76	48	93	43	——	Little		
19	70	52	87	47	——	Ditto		
20	70	50	87	47	SE	Brisk		
21	68	50	86	48	E	Strong	.36	
22	67	49	92	44	SW	Brisk		
23	71	55	93	52	SE	Ditto	.21	
24	70	47	86	39	SW	Ditto		
25	66	57	77	48	W	Stormy	.64	
26	65	49	75	47	——	Ditto	.06	
27	66	49	93	47	NW	Strong	.03	
28	64	45	73	38	W	Brisk	.05	
29	65	50	91	47	SW	Ditto	.20	
30	62	47	67	35	——	Ditto	.16	
31	66	57	76	50	——	Ditto		
	66.74	46.83	83.70	4.0			2.47	

Mean Pressure from the 3 daily observations 29.879 inches.
—— Temperature .....Ditto..... 57°.72
—— Dew Point .....Ditto..... 51°.71
—— Degree of Dryness ....Ditto..... 6°.01
—— Degree of Moisture ...Ditto..... .817
—— Force of Vapour .....Ditto..... 0.425 inch.
Least observed degree of Moisture ..... .457
Maximum Temperature in Shade ..... 81°
Minimum Temperature in ditto..... 35°
Maximum Temperature in the Sun .... 105°
Minimum of Terrestrial Radiation ..... 26°
Mean Temperature of External air ..... 56°.58

WINDS.

North.....	2 days.	N. East....	1 days.
South.....	2 ..	S. East	6 ..
East	3 ..	N. West....	3 ..
West.....	7 ..	S. West	7 ..

31 days.

Amount of Rain ..... 2.47 inch.

JUNE.

	1830.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
	T.	1	30.040	56	49	7	Fine	30.037	65	52	13	Fine	30.087	54	52	2	Clear
	W.	2	—.150	58	56	2	Ditto	—.124	70	50	20	Sultry	—.037	55	54	1	Fine
	Th.	3	29.789	64	58	6	Ditto	29.694	61	61	—	Heavy Rain	29.585	53	53	—	Cloudy
	F.	4	—.597	55	55	—	Cloudy	—.734	58	56	2	Cloudy	—.937	51	50	1	Clear
	S.	5	30.020	57	53	4	Fine	30.007	71	52	19	Sultry	—.949	59	58	1	Fine
○	S.	6	—.007	65	54	11	Ditto	—.008	70	49	21	Very Fine	—.987	58	58	—	Overcast
	M.	7	29.904	58	58	—	Wet	29.876	63	63	—	Cloudy	—.949	53	53	—	Cloudy
	T.	8	30.040	55	55	—	Cloudy	30.066	60	47	13	Ditto	30.070	54	52	2	Overcast
	W.	9	—.074	53	53	—	Ditto	—.034	56	56	—	Stormy & Wet	—.076	54	54	—	Ditto
	Th.	10	—.018	51	51	—	Slight Rain	—.000	53	53	—	Wet	—.000	55	55	—	Ditto
	F.	11	29.935	56	56	—	Wet	29.987	64	53	11	Cloudy	29.936	58	58	—	Cloudy
	S.	12	—.738	58	58	—	Ditto	—.734	63	62	1	Ditto	—.724	53	53	—	Showery
☾	S.	13	—.791	56	50	6	Fine	—.692	64	45	19	Fine with Showers	—.727	53	50	3	Fine
	M.	14	—.706	56	51	5	Cloudy	—.633	61	61	—	Showery	—.588	58	58	—	HeavyShowers
	T.	15	—.686	54	54	—	Fine	—.710	54	54	—	Wet	—.666	49	49	—	Wet
	W.	16	—.646	54	54	—	Overcast	—.767	62	55	7	Cloudy	—.876	54	54	—	Cloudy
	Th.	17	—.935	52	48	4	Ditto	—.943	55	48	7	Ditto	—.937	51	50	1	Overcast
	F.	18	—.846	60	58	2	Fine	—.783	62	59	3	Ditto	—.655	57	57	—	Ditto
	S.	19	—.643	54	42	12	Ditto	—.696	61	45	16	Fine	—.771	53	51	2	Fine
●	S.	20	—.637	56	45	11	Ditto	—.631	66	47	19	Very Fine	—.614	58	57	1	Overcast
	M.	21	—.526	61	55	6	Ditto	—.481	66	51	15	Overcast	—.495	54	54	—	Wet
	T.	22	—.415	52	52	—	Wet	—.538	57	52	5	Cloudy	—.711	52	52	—	Fine
	W.	23	—.827	60	54	6	Very Fine	—.886	66	44	22	Fine	—.886	54	50	4	Ditto
	Th.	24	—.884	61	57	4	Ditto	—.887	73	59	14	Very Fine	—.846	57	57	—	Overcast
	F.	25	—.764	68	68	—	Wet	—.735	69	69	—	Hazy	—.596	64	64	—	Cloudy with Thund.
	S.	26	—.671	70	69	1	Sultry, Cloudy	—.721	74	63	11	Fine	—.799	58	57	1	Fine
	S.	27	—.822	73	73	—	Fine	—.796	80	60	20	Sultry	—.867	60	58	2	Ditto
☽	M.	28	—.863	68	68	—	Cloudy	—.821	73	58	15	Fine	—.802	62	61	1	Ditto
	T.	29	—.865	66	59	7	Very Fine	—.915	70	50	20	Ditto	—.947	57	57	—	Ditto
	W.	30	30.021	62	56	6	Ditto	30.014	74	52	22	Very Fine	30.024	57	57	—	Clear
			29.830	58.96	55.63	3.33		29.831	64.7	54.2	10.5		29.837	55.5	54.76	.73	

JUNE.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	65	46	78	40	SW	Brisk			
2	70	50	92	45	——	Little			
3	62	50	66	49	——	Strong		91	
4	62	41	80	36	——	Little		02	
5	72	49	96	43	——	Ditto			
6	72	54	94	52	——	Ditto		13	
7	63	50	75	46	NW	Ditto		05	
8	60	49	79	44	N	Brisk		04	
9	58	49	63	45	NW	Ditto		03	
10	58	46	65	41	——	Little		05	
11	68	54	85	52	SW	Ditto		18	
12	59	55	85	41	——	Brisk		01	
13	55	50	83	42	W	Ditto		01	
14	63	46	84	43	——	Ditto		20	
15	63	47	90	45	NW	Brisk		30	
16	61	46	73	45	NE	Little		03	
17	58	45	68	40	——	Brisk		04	
18	66	48	81	46	W	Little		09	
19	57	49	91	44	——	Brisk			
20	68	47	92	40	——	Little			
21	64	48	84	47	E	Ditto		19	
22	65	—39	87	—32	W	Ditto			
23	68	50	100	39	SE	Ditto			
24	70	55	96	52	E	Ditto		23	
25	69	58	78	55	——	Ditto		09	
26	76	54	92	50	W	Ditto			
27	+81	56	+110	50	——	Ditto		02	
28	67	56	85	50	SW	Brisk			
29	73	46	98	39	——	Ditto			
30	72	52	101	49	E	Little			
	65.5	49.50	85.03	44.73				2.62	

The wet and cold which prevailed during the greater part of this month proved injurious to many sorts of plants. The 3rd and 4th were stormy with heavy rain. From the 6th to the 18th, rain more or less fell every day. On the 12th and 13th there was some hail. The temperature on the night of the 22nd was remarkably low, the radiating Thermometer being at freezing. From this time to the end of the month the weather became warm and seasonable.

Mean Pressure from the 3 daily observations 29.832 inches.
—— Temperature ..... Ditto ..... 59°.72
—— Dew Point ..... Ditto ..... 54°.86
—— Degree of Dryness ... Ditto ..... 4°.85
—— Degree of Moisture .. Ditto ..... .853
—— Force of Vapour ..... Ditto ..... 0.473 inch.
Least observed degree of Moisture ..... .488
Maximum Temperature in Shade ..... 81°
Minimum Temperature in ditto ..... 39°
Maximum Temperature in the Sun .....110°
Minimum of Terrestrial Radiation ..... 32°
Mean Temperature of External air ..... 57°.5

WINDS.

North .....1 days	N. East .....2 days
South .....0 ..	S. East .....1 ..
East .....4 ..	S. West.....10 ..
West .....8 ..	N. West.....4 ..

30 days.

Amount of Rain.....2.62 inch.

JULY.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	29.897	68	63	5	Fine	29.787	70	59	11	Fine	29.772	62	62	—	Heavy Rain
F.	2	—.707	66	66	—	Heavy Rain	—.654	65	65	—	Sultry	—.584	57	57	—	Cloudy
S.	3	—.464	64	64	—	Cloudy	—.539	61	61	—	Showery	—.683	56	56	—	Showery
S.	4	—.766	62	62	—	Ditto	—.900	69	58	11	Fine	—.865	58	58	—	Fine
M.	5	—.987	63	63	—	Dull	—.974	70	59	11	Cloudy&Calm	30.016	60	60	—	Ditto
○ T.	6	—.974	69	60	9	Fine	—.943	66	60	6	Cloudy	29.805	60	60	—	Overcast
W.	7	—.654	62	62	—	Rain	—.566	66	63	3	Showery	—.634	56	56	—	Cloudy
Th.	8	—.706	60	49	11	Fine	—.665	65	45	20	Fine, very Dry	—.496	50	50	-	Clear & Cold
F.	9	—.419	62	58	4	Cloudy & Cold	—.466	62	55	7	Cloudy	—.594	54	53	1	Ditto
S.	10	—.785	59	54	5	Fine	—.833	67	53	14	Dull	—.432	53	53	—	Fine
S.	11	—.846	57	57	—	Slight Rain	—.748	61	58	3	Ditto	—.576	58	57	1	Overcast
M.	12	—.582	60	60	—	Rain	—.743	63	53	10	Fine	—.942	53	52	1	Clear
(T.	13	30.109	62	55	7	Fine	30.134	69	49	20	Very Fine	30.156	58	58	—	Fine
W.	14	—.101	70	59	11	Ditto	—.068	75	53	22	Ditto	29.985	69	65	4	Clear & Fine
Th.	15	29.970	65	64	1	Overcast	29.971	69	69	—	Slight Rain	—.984	60	59	1	Very Clear
F.	16	30.000	66	55	11	Very Fine	—.998	71	47	24	Fine	30.063	55	55	—	Ditto
S	17	—.049	63	59	4	Fine	—.974	64	64	—	Rain	29.883	60	60	—	Heavy Rain
S.	18	29.800	63	63	—	Wet	—.814	65	65	—	Heavy Rain	—.818	55	55	—	Hazy
● M.	19	—.956	64	63	1	Fine	—.998	67	63	4	Cloudy	30.060	59	59	—	Overcast
T.	20	30.123	64	64	—	Slight Rain	30.050	64	62	2	Dull	—.113	59	59	—	Slight Rain
W.	21	—.194	65	63	2	Fine	—.104	72	59	13	Sultry	—.224	62	61	1	Calm & Fine
Th.	22	—.232	64	63	1	Hazy	—.196	78	71	7	Overcast	—.144	66	65	1	Fine & Clear
F.	23	—.124	68	65	3	Fine	—.091	75	70	5	Cloudy	—.061	68	68	—	Slight Rain
S.	24	—.056	68	62	6	Ditto	—.079	74	67	7	Fine	—.111	63	61	2	Fine
S.	25	—.224	66	63	3	Very Fine	—.166	85	70	15	Very Hot	—.196	69	66	3	Ditto
M.	26	—.224	74	60	14	Ditto	—.220	86	69	17	Ditto	—.240	71	69	2	Very Fine
) T.	27	—.311	75	61	14	Ditto	—.208	82	65	17	Ditto	—.321	70	64	6	Ditto
W.	28	—.323	71	58	13	Ditto	—.291	83	66	17	Ditto	—.235	67	67	—	Ditto [ning
Th.	29	—.148	74	71	3	Ditto	—.090	83	69	14	Ditto	—.011	68	68	—	Overcast, Light-
F.	30	29.926	79	79	—	Sultry	29.872	88	73	15	Sultry	29.923	71	69	2	Overcast
S.	31	30.031	72	69	3	Overcast	30.034	76	66	10	Ditto	30.039	65	64	1	Clear & Fine
		29.957	65.96	61.74	4.22		29.941	71.32	61 48	9.83		29.934	61.03	60.19	0.83	

JULY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	73	56	94	53	E	Brisk		.31	The first part of the month was showery, windy, and cold for this period of the season. On the nights of the 10th and 12th, the radiating Thermometer indicated as low as 39°. From this to the 17th was seasonable. The 18th was stormy and wet. Fine weather succeeded, and the last 8 days were very hot: on the 30th in particular, the Thermometer in the shade rose to 88°, which was higher than it had been since 1826. The want of heat in the earth, from the cold and wet of the preceding months, appeared still in many instances of vegetation.
2	69	54	81	52	S	Little		.21	
3	70	53	99	50	NE	Ditto		.05	
4	75	51	98	47	SW	Ditto			
5	72	52	87	45	S	Ditto			
6	67	57	80	54	——	Ditto			
7	69	52	88	44	W	Brisk		.04	
8	67	47	96	42	——	Ditto			
9	65	51	97	43	——	Ditto		.01	
10	66	—45	85	—39	——	Little			
11	68	55	73	52	E	Ditto		.09	
12	68	45	90	39	W	Brisk			
13	74	46	103	40	SW	Little			
14	79	49	103	43	S	Ditto			
15	73	53	93	45	SW	Brisk			
16	75	48	100	41	W	Little			
17	66	60	84	59	S	Ditto		.22	
18	66	51	80	49	——	Brisk		.47	
19	72	53	95	49	——	Little			
20	68	54	86	50	W	Ditto		.01	
21	78	58	105	54	——	Ditto			
22	74	60	86	57	——	Ditto			
23	75	62	95	60	——	Brisk			
24	77	54	100	50	SW	Little			
25	85	61	+117	56	W	Ditto			
26	87	62	115	58	S	Ditto			
27	84	53	116	47	E	Ditto			
28	84	60	107	55	——	Brisk			
29	85	63	110	60	——	Little		.03	
30	+88	63	114	60	W	Ditto		.02	
31	83	53	115	46	SW	Ditto			
	74.25	54.22	96.51	49.64			1.46		

Mean Pressure from the 3 daily observations 29.944 inches.
—— Temperature .....Ditto..... 66°.10
—— Dew Point .....Ditto..... 61°.13
—— Degree of Dryness ....Ditto..... 4°.96
—— Degree of Moisture....Ditto..... .875
—— Force of Vapour.....Ditto..... 0.579 inch.
Least observed degree of Moisture..... .457
Maximum Temperature in Shade..... 88°
Minimum Temperature in ditto..... 45°
Maximum Temperature in the Sun .... 117°
Minimum of Terrestrial Radiation ..... 39°
Mean Temperature of External Air..... 64°.2

WINDS.

North.....0 days.		N. East ....1 days.	
South 8	..	S. East.....0	..
East 5	..	S. West 5	..
West 12	..	N. West....0	..

31 days.

Amount of Rain ..... 1.46 inches.

AUGUST.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.996	67	58	9	Very Fine	29.870	79	69	10	Fine	29.822	65	63	2	Cloudy
M.	2	—.820	66	63	3	Fine	—.812	70	58	12	Rain	—.906	57	57	—	Clear
T.	3	—.981	64	64	—	Ditto	30.037	69	69	—	Slight Showers	30.106	63	61	2	Showery
○ W.	4	30.049	67	67	—	Calm with Showers	—.025	76	60	16	Fine	29.878	66	65	1	Cloudy, Lightning
Th.	5	29.885	67	62	5	Fine	29.957	74	54	20	Very Dry	—.990	57	57	—	Fine
F.	6	30.021	63	53	10	Ditto	30.012	64	54	10	Fine with Clouds	30.002	59	57	2	Overcast
S.	7	29.934	64	54	10	Very Fine	29.879	70	51	19	Cloudy	29.813	58	58	—	Cloudy
S.	8	—.724	66	60	6	Hazy, Fine	—.713	73	54	19	Fine	—.807	55	54	1	Clear
M.	9	—.809	67	60	7	Fine	—.772	74	63	11	Ditto	—.758	57	57	—	Overcast
T.	10	—.654	65	65	—	Slight Rain	—.634	66	66	—	Dull	—.633	59	58	1	Ditto
☾ W.	11	—.714	66	63	3	Fine	—.707	74	61	13	Fine	—.684	60	60	—	Rain
Th.	12	—.746	64	64	—	Ditto	—.770	70	59	11	Ditto	—.802	59	57	2	Fine
F.	13	—.693	58	58	—	Rain	—.646	56	56	—	Heavy Rain	—.805	53	53	—	Clear
S.	14	—.882	61	61	—	Cloudy	—.813	60	60	—	Rain	—.545	55	55	—	Rain
S.	15	—.743	56	56	—	Fine	—.767	67	54	13	Fine, Slight Showers	—.872	52	52	—	Fine
M.	16	—.935	56	51	5	Ditto	—.936	65	49	16	Fine	—.969	54	52	2	Clear
T.	17	—.967	56	54	2	Very Fine	—.835	63	62	1	Cloudy	—.734	50	50	—	Heavy Rain
● W.	18	30.161	55	52	3	Fine	30.157	61	50	11	Fine	30.199	50	50	—	Fine
Th.	19	—.187	56	51	5	Clear & Cool	—.142	63	49	14	Ditto	—.076	50	50	—	Do. but Cold
F.	20	29.986	53	49	4	Ditto	29.963	59	48	11	Cloudy	29.961	52	50	2	Overcast
S.	21	30.008	57	50	7	Fine	—.993	64	50	14	Fine	—.973	50	50	—	Fine
S.	22	—.030	55	51	4	Very Fine	30.017	66	49	17	Very Fine	30.030	59	59	—	Rain
M.	23	29.987	62	62	—	Slight Rain	29.972	67	63	4	Overcast	29.920	57	56	1	Fine
T.	24	—.880	61	60	1	Overcast	—.873	69	55	14	Fine	—.835	59	59	—	Rain
W.	25	—.795	62	61	1	Cloudy	—.772	67	54	13	Ditto	—.708	58	58	—	Cloudy, Lightning
☽ Th.	26	—.835	60	55	5	Ditto	—.871	66	50	16	Ditto	—.835	57	57	—	Fine
F.	27	—.764	60	60	—	Hazy	—.671	70	58	12	Dull	—.404	57	57	—	Heavy Rain
S.	28	29.291	57	57	—	Heavy Rain	29.507	64	64	—	Stormy & Wet	—.611	55	55	—	Clear
S.	29	—.911	59	55	4	Fine	—.958	64	64	—	Thunder Showers with Hail	30.100	49	49	—	Fine
M.	30	30.234	54	50	4	Ditto	30.192	66	49	17	Very Fine	—.220	49	49	—	Ditto
T.	31	—.283	54	52	2	Ditto	—.254	66	50	16	Ditto	—.303	52	52	—	Ditto
		29.900	60.58	57.36	3.22		29.888	67.16	56.51	10.64		29.880	55.90	55.38	.51	

AUGUST.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	78	54	100	52	S	Brisk			The temperature of the first part of this month, although considerably below that of the latter part of the last, was still tolerably high. From the middle to the end it was frequently very low in the night. The radiating Thermometer was within a degree of the freezing point, on the mornings of the 19th, 21st, and 29th; and on that of the 30th it was two degrees below. Heavy rains were also frequent, particularly between the 10th and 15th. Generally speaking, the greater part of this month was wet, cold, and unseasonable.
2	73	53	95	49	W	Ditto		.23	
3	75	53	98	52	SW	Little		.05	
4	+80	60	+112	58	SE	Ditto		.01	
5	77	49	107	44	W	Ditto			
6	68	52	85	48	——	Ditto			
7	71	54	95	52	SW	Ditto			
8	74	46	107	42	E	Ditto			
9	76	55	110	52	S	Ditto			
10	65	56	77	53	E	Ditto		.06	
11	77	55	105	52	SW	Ditto		.04	Mean Pressure from the 3 daily observations 29.889 inches.
12	72	55	95	53	——	Brisk		.07	—— Temperature ..... Ditto ..... 61°.21
13	66	50	79	45	——	Little		.72	—— Dew Point ..... Ditto ..... 56°.41
14	67	49	81	47	S	Ditto		.56	—— Degree of Dryness ... Ditto ..... 4°.79
15	70	44	99	39	W	Ditto		.01	—— Degree of Moisture ... Ditto ..... .858
16	69	41	98	36	SW	Ditto			—— Force of Vapour ..... Ditto ..... 0.498 inch.
17	68	44	95	39	W	Ditto		.53	Least observed degree of Moisture ..... .524
18	64	40	92	34	NE	Ditto			Maximum Temperature in Shade ..... 80°
19	66	41	108	33	NW	Brisk			Minimum Temperature in ditto ..... 38°
20	64	47	107	41	——	Ditto			Maximum Temperature in the Sun .....112°
21	70	39	99	33	W	Little			Minimum of Terrestrial Radiation ..... 30°
22	74	66	105	54	——	Ditto		.01	Mean Temperature of External Air ..... 60°.18
23	69	55	87	50	——	Brisk			
24	72	55	90	51	——	Ditto		.02	
25	70	54	91	49	——	Ditto		.17	
26	69	49	91	41	——	Ditto			
27	71	53	93	49	SW	Little		.40	
28	66	48	80	44	W	Brisk		.16	
29	68	40	81	33	SW	Ditto		.01	
30	70	—38	99	—30	W	Little			
31	73	45	99	38	——	Ditto			
	70.70	49.67	95.48	44.93			3.05		

WINDS.

North.....	0 days.	N. East.....	1 days.
South.....	3 ..	S. East	1 ..
East.....	2 ..	S. West.....	8 ..
West.....	14 ..	N. West	2 ..

31 days.

Amount of Rain.....3.05 inches.

SEPTEMBER.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	30.326	60	57	3	Hazy	30.295	69	52	17	Very Fine	30.256	53	53	—	Clear & Fine
○ Th.	2	—.212	60	55	5	Fine	—.121	68	61	7	Fine	29.936	58	58	—	Overcast
F.	3	29.825	60	50	10	Ditto	29.809	65	55	10	Cloudy	—.931	55	55	—	Cloudy
S.	4	—.949	57	55	2	Ditto	—.956	65	49	16	Fine	—.858	57	56	1	Fine
S.	5	—.703	57	57	—	Wet	—.696	65	65	—	Cloudy	—.697	55	54	1	Overcast
M.	6	—.566	57	56	1	Cloudy	—.511	62	62	—	HeavyShowers	—.570	56	56	—	Heavy Rain, Thunder
T.	7	—.745	58	58	—	Ditto	—.756	62	56	6	Cloudy	—.889	54	53	1	Cloudy
W.	8	30.018	58	58	—	Ditto	30 025	67	58	9	Ditto	30.010	50	50	—	Clear & Calm
◐ Th.	9	29.858	59	59	—	Foggy	29.805	63	63	—	Ditto	29.698	55	55	—	Wet
F.	10	—.663	55	55	—	Wet	—.698	63	56	7	Clearing	—.747	49	49	—	Cold & Clear
S.	11	—.790	54	54	—	Fine	—.778	60	50	10	Fine	—.692	51	50	1	Overcast
S.	12	—.393	53	53	—	Ditto	—.340	57	57	—	Heavy Rain	—.340	43	43	—	Clear
M.	13	—.504	54	54	—	Cloudy	—.538	62	49	13	Fine	—.532	47	47	—	Ditto
T.	14	—.441	57	57	—	Fine	—.445	65	52	13	Ditto	—.536	49	49	—	Ditto
W.	15	—.649	60	58	2	Ditto	—.669	58	58	—	HeavyShowers	—.613	57	57	—	Wet
Th.	16	—.609	59	56	3	Ditto	—.695	63	48	15	Fine	—.808	57	56	1	Fine
● F.	17	—.702	53	53	—	Ditto	—.647	60	60	—	Wet	—.602	49	49	—	Dense Fog
S.	18	—.587	54	54	—	Showery	—.674	61	61	—	Ditto	—.889	47	47	—	Fine
S.	19	—.962	60	60	—	Fine	—.809	64	64	—	Cloudy	—.667	57	57	—	Slight Rain
M.	20	—.641	57	51	6	Ditto	—.633	62	49	13	Fine	—.496	51	50	1	Overcast
T.	21	—.211	51	51	—	Heavy Rain	—.220	52	48	4	Do. wth Clouds	—.367	43	43	—	Clear
W.	22	—.579	50	50	—	Fine	—.647	61	48	13	Very Fine	—.695	48	48	—	Fine .
Th.	23	—.326	60	60	—	Wet	—.367	62	62	—	Showery	—.667	51	50	1	Ditto
F.	24	—.679	55	53	2	Fine	—.597	52	52	—	Stormy & Wet	—.635	48	48	—	Clear
☽ S.	25	—.750	53	46	7	Windy, Cold	—.798	58	58	—	Flying showers	—.974	45	45	—	Fine & Calm
S.	26	30.214	49	48	1	Very Fine	30.276	64	52	12	Very Fine	30.306	43	43	—	Fine
M.	27	—.411	54	54	—	Hazy	—.402	60	58	2	Overcast	—.367	54	54	—	Ditto
T.	28	—.283	60	58	2	Overcast	—.200	65	65	—	Ditto	—.117	56	56	—	Overcast
W.	29	—.048	54	54	—	Ditto	—.024	58	47	11	Ditto	—.073	48	48	—	Clear
T.	30	—.161	50	50	—	Foggy	—.093	59	49	10	Fine	—.076	41	41	—	Foggy
		29.793	55.93	54.46	1.46		29.787	61.73	55.46	6.26		29.800	50.90	50.66	.23	

SEPTEMBER.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	+75	42	95	34	SW	Little			With the exception of the 1st and 8th days of this month, and part of the last week, rain more or less fell every day. Thunder, accompanied with heavy rain, occurred on the afternoon of the 6th. The general character of the month was wet, cold, and frequently windy. The cold and wet, together with a want of sun, in this and the latter part of the last month, were much against the perfecting of many productions of the Garden; and the expectations formed from the preceding very warm weather were frustrated in consequence of its short duration. A strong excitement was produced in vegetation, which the great decrease in temperature could not afterwards support.
2	70	51	87	45	——	Ditto		.01	
3	66	51	79	44	W	Ditto		.07	
4	70	49	+103	44	——	Ditto		.17	
5	68	50	87	47	——	Brisk		.01	
6	64	52	80	47	——	Ditto		.45	
7	65	52	91	46	NW	Little		.05	
8	66	42	89	36	SW	Ditto			
9	60	52	62	51	S	Ditto		.31	
10	65	42	83	36	W	Ditto		.10	
11	66	48	88	45	S	Ditto		.12	
12	64	41	77	34	——	Ditto		.26	
13	67	44	90	37	W	Brisk		.06	
14	68	44	87	37	SW	Little		.01	
15	64	55	74	52	——	Brisk		.18	
16	67	43	83	36	W	Ditto		.06	
17	62	46	76	42	NW	Little		.21	
18	67	40	86	34	SW	Ditto		.07	
19	63	50	76	46	W	Brisk		.10	
20	66	42	80	42	SW	Ditto		.45	
21	61	—32	72	—28	S	Little		.10	
22	66	48	90	44	SW	Ditto		.18	
23	66	45	75	39	——	Brisk		.01	
24	62	46	77	41	——	Ditto		.08	
25	62	40	80	33	——	Ditto			
26	65	38	91	32	S	Little			
27	63	51	71	48	W	Ditto		.15	
28	60	48	80	47	S	Ditto			
29	61	38	88	33	SW	Ditto			
30	63	35	87	32	W	Ditto			
	65.06	45.23	82.80	40 40				3.21	

With the exception of the 1st and 8th days of this month, and part of the last week, rain more or less fell every day. Thunder, accompanied with heavy rain, occurred on the afternoon of the 6th. The general character of the month was wet, cold, and frequently windy. The cold and wet, together with a want of sun, in this and the latter part of the last month, were much against the perfecting of many productions of the Garden; and the expectations formed from the preceding very warm weather were frustrated in consequence of its short duration. A strong excitement was produced in vegetation, which the great decrease in temperature could not afterwards support.

Mean Pressure from the 3 daily observations 29.793 inches.
—— Temperature ..... Ditto ..... 56°.18
—— Dew Point ..... Ditto ..... 53°.52
—— Degree of Dryness .... Ditto ..... 2°.65
—— Degree of Moisture .. Ditto ..... .910
—— Force of Vapour ..... Ditto ..... 0.452 inch.
Least observed degree of Moisture ..... .574
Maximum Temperature in Shade ..... 75°
Minimum Temperature in ditto ..... 32°
Maximum Temperature in the Sun .....103°
Minimum of Terrestrial Radiation ..... 28°
Mean Temperature of External Air ..... 55°.14

WINDS.

North .....0 days		N. East ....0 days.	
South.....6	..	S. East.....0	..
East.....0	..	S. West ...12	..
West 10	..	N. West ...2	..

30 days.

Amount of Rain..... 3.21 inches.

OCTOBER.

		Morning.					Noon.					Night.				
1829.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	30.086	53	53	—	Fine	30.070	61	52	9	Overcast	30.100	58	58	—	Dull
⊙ S.	2	—.110	58	57	1	Ditto	—.072	62	62	—	Ditto	—.000	57	57	—	Overcast
S.	3	—.000	60	60	—	Small Rain	—.113	63	63	—	Ditto	—.090	56	56	—	Ditto
M.	4	—.158	55	55	—	Overcast	—.216	60	55	5	Fine	—.368	44	44	—	Fine
T.	5	—.440	50	50	—	Fine	—.416	58	47	11	Ditto	—.437	46	45	1	Ditto
W.	6	—.418	51	51	—	Overcast	—.378	54	54	—	Cloudy	—.364	51	51	—	Ditto
Th.	7	—.392	54	53	1	Fine	—.492	63	59	4	Fine	—.441	47	47	—	Ditto
☾ F.	8	—.491	54	54	—	Foggy	—.484	63	56	7	Very Fine	—.502	51	51	—	Ditto
S.	9	—.529	54	54	—	Fine	—.535	59	47	12	Dull	—.541	48	47	1	Ditto
S.	10	—.550	53	53	—	Hazy	—.516	60	53	7	Overcast	—.457	44	44	—	Ditto
M.	11	—.416	48	48	—	Ditto	—.382	58	48	10	Fine	—.356	51	50	1	Ditto
T.	12	—.364	52	50	2	Overcast	—.341	55	50	5	Overcast	—.368	50	50	—	Rain
W.	13	—.415	48	48	—	Clearing	—.380	60	52	8	Fine	—.384	45	45	—	Fine
Th.	14	—.352	43	43	—	Foggy	—.308	55	44	11	Ditto	—.285	39	39	—	Foggy
F.	15	—.257	38	38	—	Do. and Cold	—.225	54	41	13	Ditto	—.239	35	34	1	Clear
● S.	16	—.289	35	35	—	Dense Fog	—.290	55	48	7	Ditto	—.347	39	39	—	Foggy
S.	17	—.396	45	45	—	Ditto	—.387	54	53	1	Dull	—.473	38	38	—	Fine
M.	18	—.313	44	44	—	Ditto	—.255	58	53	5	Very Fine	—.140	44	44	—	Ditto
T.	19	—.034	54	54	—	Slight Rain	—.018	65	63	2	Ditto	—.004	53	53	—	Ditto
W.	20	30.042	59	59	—	Very Fine	—.038	67	64	3	Ditto	—.122	52	52	—	Ditto
Th.	21	—.193	59	59	—	Ditto	—.150	69	63	6	Ditto	—.270	53	53	—	Ditto
F.	22	—.268	58	57	1	Ditto	—.273	69	63	6	Ditto	—.264	59	59	—	Slight Rain
S.	23	—.402	54	54	—	Cloudy	—.398	59	47	12	Overcast	—.497	49	49	—	Overcast
D S.	24	—.489	50	50	—	Overcast	—.384	58	51	7	Ditto	—.322	51	51	—	Ditto
M.	25	—.090	55	55	—	Rain	29.950	59	59	—	Rain	29.935	55	55	—	Cloudy
T.	26	—.028	49	49	—	Clear	30.127	51	51	—	Cloudy	30.368	34	34	—	Clear
W.	27	—.387	40	40	—	Overcast	—.327	52	46	6	Fine	—.182	50	50	—	Wet
Th.	28	29.964	55	55	—	Ditto	29.927	61	61	—	Cloudy	29.747	55	55	—	Stormy & Wet
F.	29	—.720	49	49	—	Fine	—.685	53	44	9	Ditto	—.824	46	46	—	Clear
S.	30	30.034	41	40	1	Ditto	30.041	48	35	13	Fine	30.088	42	40	2	Ditto
○ S.	31	29.936	53	53	—	Rain	29.919	61	58	3	Ditto	—.081	30	50	—	Fine
		30.244	50.67	50.48	.19		30.228	58.83	52.96	5.87		30.245	48.12	47.93	.19	

OCTOBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	62	52	75	49	S	Little		This month was very favourable for the operations of the garden, being for the most part fine and dry. The quantity of rain was unusually small, not amounting to one inch; more than half of which fell on the 25th. The nights were frosty between 14th and 17th, when the Dahlias and other similarly tender plants were injured, and on the night of the 26th their appearance was completely spoiled, the minimum being then 29°, and by the radiating Thermometer 21°.
2	65	55	75	52	——	Ditto	.04	
3	63	50	66	45	——	Ditto		
4	65	38	77	31	NW	Ditto		
5	62	41	85	36	N	Ditto		
6	56	41	62	34	NW	Ditto		
7	66	45	86	39	SW	Ditto		
8	67	47	88	43	W	Ditto		
9	58	45	64	37	NE	Ditto		
10	60	40	61	31	W	Ditto		
11	58	47	70	45	NE	Ditto		
12	56	42	72	32	——	Ditto	.02	
13	62	36	82	29	E	Ditto		
14	59	30	81	23	——	Ditto		
15	58	31	80	22	——	Ditto		
16	59	32	81	25	——	Ditto		
17	55	31	56	26	——	Ditto		
18	62	40	82	35	SE	Ditto	.02	
19	67	46	79	42	S	Ditto	.01	
20	72	46	88	40	——	Ditto		
21	+73	44	+90	40	——	Ditto		
22	69	52	77	49	——	Ditto	.07	
23	61	45	80	42	N	Ditto		
24	60	48	77	47	W	Ditto	.05	
25	61	45	69	40	SW	Brisk	.59	
26	54	—29	68	—21	N	Ditto	.05	
27	57	41	66	42	W	Ditto	.01	
28	62	45	66	39	——	Ditto	.11	
29	55	36	70	33	——	Ditto		
30	54	41	68	35	——	Little		
31	63	48	75	42	——	Brisk	.01	
	61.32	42.22	74.73	36.96			.98	

Mean Pressure from the 3 daily observations 30.239 inches.
—— Temperature.....Ditto..... 52°.54
—— Dew Point.....Ditto..... 50°.46
—— Degree of Dryness....Ditto..... 2°.08
—— Degree of Moisture....Ditto..... .931
—— Force of Vapour.....Ditto..... 0.406 inch.
Least observed degree of Moisture..... .634
Maximum Temperature in the Shade.... 73°
Minimum Temperature in ditto..... 29°
Maximum Temperature in the Sun..... 90°
Minimum of Terrestrial Radiation..... 21°
Mean Temperature of External Air..... 51°.77

WINDS.

North	3 days.	N. East.....	3 days.
South	7 ..	S. East.....	1 ..
East.....	5 ..	S. West.....	2 ..
West.....	8 ..	N. West	2 ..

31 days.

Amount of Rain ..... .98 inch.

NOVEMBER.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
M.	1	30.141	53	53	—	Fine	30.150	61	55	6	Fine	30.167	51	50	1	Fine
T.	2	—.151	53	51	2	Ditto	—.118	56	51	5	Ditto	—.030	52	51	1	Overcast
W.	3	29.942	52	51	1	Ditto	29.864	58	55	3	Dull	29.774	57	55	2	Fine
Th.	4	—.859	48	48	—	Ditto	—.842	56	52	4	Fine	—.916	46	46	—	Clear
F.	5	—.961	50	50	—	Ditto	—.909	58	58	—	Showery	—.716	54	54	—	Cloudy
S.	6	—.584	56	56	—	Cloudy	—.446	58	58	—	Ditto	—.182	57	57	—	Stormy & Wet
☾ S.	7	—.131	50	50	—	Rain	—.206	51	51	—	Fine	—.455	44	44	—	Clear
M.	8	—.672	37	37	—	Hazy	—.732	50	46	4	Ditto	—.837	33	33	—	Fine
T.	9	—.928	30	30	—	Clear & Frosty	—.916	50	39	11	Ditto	—.900	41	40	1	Ditto
W.	10	—.789	51	50	1	Fine	—.719	56	53	3	Cloudy	—.625	53	53	—	Heavy Rain
Th.	11	—.546	49	49	—	Showery	—.550	52	47	5	Fine	—.688	43	43	—	Clear
F.	12	30.003	42	42	—	Fine	30.068	50	45	5	Ditto	30.070	35	35	—	Ditto
S.	13	29.870	45	45	—	Overcast	29.729	50	45	5	Cloudy	29.587	50	50	—	Rain
S.	14	—.622	50	50	—	Fine	—.629	55	52	3	Fine	—.528	48	48	—	Heavy Rain
● M.	15	—.635	46	46	—	Overcast	—.643	54	49	5	Ditto	—.641	52	51	1	Cloudy
T.	16	—.792	54	53	1	Ditto	—.096	54	54	—	Rain	—.283	47	47	—	Dull
W.	17	—.502	43	43	—	Fine	—.546	51	48	3	Cloudy	—.673	40	40	—	Cloudy
Th.	18	—.803	36	36	—	Ditto	—.864	43	43	—	Ditto	30.056	43	43	—	Fine
F.	19	30.225	32	32	—	Ditto	30.231	44	44	—	Fine	—.215	31	31	—	Ditto
S.	20	—.038	42	42	—	Overcast	29.973	59	59	—	Rain	—.083	43	43	—	Ditto
S.	21	29.955	43	43	—	Fine	—.921	54	53	1	Fine	29.822	45	45	—	Showery
M.	22	—.760	48	48	—	Showery	—.861	47	47	—	Showery	30.048	40	39	1	Fine
☽ T.	23	30.188	39	39	—	Fine	30.217	49	44	5	Fine	—.321	40	40	—	Ditto
W.	24	—.449	31	31	—	Slight Fog	—.459	35	35	—	Foggy	—.456	30	30	—	Dense Fog
Th.	25	—.426	27	27	—	Foggy	—.404	40	40	—	Fine	—.357	35	35	—	Overcast
F.	26	—.179	35	35	—	Slight Fog	—.062	41	37	4	Cloudy	29.931	39	39	—	Ditto
S.	27	29.796	35	34	1	Fine	29.728	41	38	3	Fine	—.576	38	37	1	Fine
S.	28	—.532	43	43	—	Rain	—.571	48	48	—	Cloudy	—.694	44	44	—	Overcast
M.	29	—.717	44	44	—	Hazy	—.848	44	44	—	Hazy	—.925	45	45	—	Foggy
○ T.	30	—.951	44	44	—	Drizzly & Foggy	—.939	44	44	—	Small Rain	—.977	44	43	1	Overcast
		29.871	43.60	43.40	.20		29.841	50.30	47.80	2.50		29.850	44.00	43.70	.30	

NOVEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	+63	44	72	40	W	Little		A considerable quantity of rain fell in this month, but chiefly at night. The days were in general fine for the season, and very favourable for the operations of the garden. The dense fogs which usually characterize this period of the season were by no means prevalent, excepting at some times in the last week, and particularly on the 24th, on which there was also a sharper degree of frost than was experienced throughout the month. The wind then became easterly, but for the first three weeks it was either from a south or west direction. The 6th and 10th **were stormy and wet.**
2	62	50	+77	47	——	Ditto		
3	58	46	64	42	S	Ditto	.11	
4	59	46	69	40	——	Brisk	.01	
5	59	51	62	47	——	Ditto	.08	
6	58	49	64	47	——	Ditto	.76	
7	54	33	57	26	SW	Little	.05	
8	54	29	71	19	——	Ditto		
9	54	31	65	29	S	Brisk		
10	56	47	57	28	——	Ditto	.67	
11	54	31	65	24	SW	Ditto		
12	53	30	66	26	——	Little		
13	53	46	59	44	S	Brisk	.09	
14	57	41	62	36	——	Little	.27	
15	57	42	68	44	——	Brisk		
16	57	30	57	29	——	Ditto	.41	
17	55	31	64	27	SW	Little	.03	
18	44	29	44	23	W	Ditto	.02	
19	49	29	60	22	S	Ditto	.01	
20	48	30	60	26	——	Ditto	.12	
21	56	46	65	42	——	Ditto	.23	
22	55	32	63	26	W	Brisk	.04	
23	51	29	63	23	——	Little		
24	39	—25	55	—18	SW	Ditto		
25	44	27	53	20	E	Ditto		
26	42	31	50	26	——	Brisk		
27	47	36	52	32	——	Little	.13	
28	48	42	48	40	——	Ditto		
29	45	42	45	41	——	Ditto	.02	
30	44	41	44	39	——	Ditto		
	52.50	36.86	60.03	32.43			3.05	

Mean Pressure from the 3 daily observations 29.854 inches.
—— Temperature.....Ditto..... 45°.96
—— Dew Point.....Ditto..... 44°.96
—— Degree of Dryness.....Ditto..... 1°.
—— Degree of Moisture.....Ditto..... .965
—— Force of Vapour.....Ditto..... 0.338 inch.
Least observed degree of Moisture..... .680
Maximum Temperature in Shade ..... 63°
Minimum Temperature in ditto..... 25°
Maximum Temperature in the Sun..... 77°
Minimum of Terrestrial Radiation..... 18°
Mean Temperature of External Air..... 44°.68

WINDS.

North	0 days	N. East	0 days
South	13 ..	S. East	0 ..
East	6 ..	S. West	6 ..
West	5 .	N. West	0 ..

30 days.

Amount of Rain.....3.05 inch.

DECEMBER.

		Morning.					Noon.					Night.				
1830.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	30.049	43	43	—	Hazy	30.043	43	42	1	Dull	30.038	41	40	1	Overcast
Th.	2	29.908	42	38	4	Overcast	29.804	39	36	3	Cloudy & Cold	29.723	38	37	1	Ditto
F.	3	—.646	37	37	—	Rain	—.635	39	39	—	Drizzly	—.677	39	39	—	Ditto
S.	4	—.785	38	38	—	Overcast	—.801	40	38	2	Hazy	—.854	39	39	—	Foggy
S.	5	—.791	38	38	—	Fine	—.685	45	41	4	Fine	—.443	36	35	1	Fine
M.	6	—.159	45	45	—	Rain	—.128	49	49	—	Cloudy	—.120	49	48	1	Dark & Cloudy
☾ T.	7	—.166	45	45	—	Overcast	—.184	47	47	—	Hazy	—.239	47	47	—	Ditto
W.	8	—.228	45	45	—	Ditto	—.217	46	46	—	Small Rain	—.188	43	43	—	Drizzly & Foggy
Th.	9	28.927	45	45	—	Heavy Rain	28.910	47	47	—	Cloudy	28.930	42	42	—	Rain
F.	10	29.059	42	42	—	Cloudy	29.118	44	41	3	Ditto	29.277	33	33	—	Clear
S.	11	—.352	34	34	—	Clear	—.360	43	41	2	Fine	—.328	35	35	—	Overcast
S.	12	—.469	31	29	2	Do. & Frosty	—.649	39	36	3	Cold & Cloudy	—.993	32	31	1	Clear & Frosty
M.	13	30.238	30	28	2	Ditto	30.244	29	26	3	Clear	30.403	30	29	1	Overcast
T.	14	—.444	30	30	—	Ditto	—.423	40	37	3	Overcast	—.386	32	32	—	Fine
● W.	15	—.422	34	34	—	Foggy	—.466	40	40	—	Rain	—.373	36	36	—	Wet & Foggy
Th.	16	—.418	34	34	—	Ditto	—.411	35	35	—	Showery	—.367	26	26	—	Sharp Frost
F.	17	—.099	32	32	—	Sleet	—.000	37	37	—	Sleet	—.085	32	32	—	Snowing
S.	18	—.212	34	34	—	Cloudy & Cold	—.228	36	36	—	Slight Snow	—.225	33	33	—	Fine [Wind
S.	19	—.238	30	30	—	Fine	—.111	36	33	3	Fine	29.624	40	40	—	Rain, w^h strong
M.	20	29.550	35	33	2	Ditto	29.684	43	38	5	Ditto	—.735	38	35	3	Fine
T.	21	—.895	34	30	4	Ditto	—.836	40	35	5	Ditto	—.757	43	42	1	Ditto
☽ W.	22	—.627	45	45	—	Cloudy	—.572	50	48	2	Ditto	—.391	35	35	—	Ditto
Th.	23	—.479	34	33	1	Do. but Cold	—.499	35	26	9	Ditto	—.590	26	25	1	Clear & Frosty
F.	24	—.508	19	14	5	Very Clear	—.397	23	12	11	Clear, sharp Frost	—.358	18	16	2	Ditto
S.	25	—.362	14	14	—	Severe Frost, with Slight Snow.	—.306	26	20	6	Ditto	—.350	17	15	2	Ditto
S.	26	—.378	24	21	3	Cloudy	—.358	32	26	6	Ditto	—.257	26	23	3	Overcast
M.	27	—.231	29	29	—	Ditto	—.237	34	30	4	Dull	—.168	30	29	1	Ditto
T.	28	—.112	34	34	—	Overcast	—.143	34	34	—	Hazy	—.566	33	33	—	Ditto
⊙ W.	29	—.727	23	23	—	Frosty & Foggy	—.723	32	32	—	Fine	—.699	31	31	—	Clear & Frosty
Th.	30	—.527	35	35	—	Hazy	—.384	38	38	—	Ditto	—.253	44	44	—	Fine
F.	31	—.278	47	47	—	Boisterous	—.343	46	46	—	Cloudy	—.584	34	34	—	Ditto
		29.654	34.90	34.16	.74		29.641	38.93	36.51	2.41		29.644	34.77	34.16	.61	

DECEMBER.

Temperature.					Wind.		Rain.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.
1	42	38	42	36	E	Little	
2	39	35	39	33	SE	Brisk	.11
3	38	33	38	32	E	Little	.01
4	40	36	40	33	NE	Ditto	.04
5	42	32	61	31	SE	Ditto	
6	45	50	50	42	——	Ditto	
7	48	44	48	43	E	Brisk	.01
8	45	42	45	41	——	Little	.30
9	49	42	52	39	——	Ditto	.18
10	44	31	46	28	NW	Ditto	
11	46	28	57	20	W	Ditto	
12	41	29	47	21	N	Brisk	
13	37	24	50	14	——	Little	
14	41	30	42	23	W	Ditto	
15	40	33	41	31	SW	Ditto	.10
16	37	23	42	13	NE	Ditto	.18
17	39	32	41	27	N	Ditto	.04
18	39	30	49	22	——	Brisk	.02
19	45	31	52	30	SW	Little	
20	44	31	52	27	NW	Strong	
21	48	34	54	33	W	Little	
22	50	32	52	26	——	Brisk	.05
23	33	18	48	8	NW	Little	
24	26	—10	32	16	——	Ditto	
25	27	12	32	— 6	W	Ditto	
26	32	24	41	18	SW	Ditto	
27	33	29	37	27	SE	Ditto	.40
28	32	21	34	16	SW	Ditto	.10
29	33	28	43	25	NW	Ditto	
30	+53	40	53	34	E	Ditto	
31	48	26	50	20	SW	Strong	
	40.41	30.58	45.48	26.29			1.54

Remarks.

On the whole the weather throughout this month was favourable for the operations of the Garden, especially during the first three weeks. On the 22nd, the frost set in suddenly, and continued very severe for about a week, during which time the minimum temperature in the shade was as low as 10°, the cold being as intense as at any period of the continued frost of last winter. On the 24th however the snow covered the ground before the frost had penetrated to any great great depth, and the roots of plants were in consequence less injured than they otherwise would have been. It will be observed, that on the night of the 24th, the radiating Thermometer instead of being lower, was 6° higher than the min. temp. in the shade, which is accounted for by its being covered by the snow.

Mean Pressure from the 3 daily observations 29°.646 inches.
—— Temperature .....Ditto..... 36°.20
—— Dew Point ....Ditto..... 34°.94
—— Degree of Dryness.....Ditto..... 1°.25
—— Degree of Moisture....Ditto..... .959
—— Force of Vapour .....Ditto..... 0.239 inch.
Least observed degree of Dryness ..... .677
Maximum Temperature in Shade ..... 53°
Minimum Temperature in ditto ..... 10°
Maximum Temperature in the Sun ..... 61°
Minimum of Terrestrial Radiation ..... 6°
Mean Temperature of External Air ..... 35°49.

WINDS.

North	4 days	N. East.....	2 days
South	0 ..	S. East	4 ..
East	6 ..	S. West	5 ..
West	5 ..	N. West....	5 ..

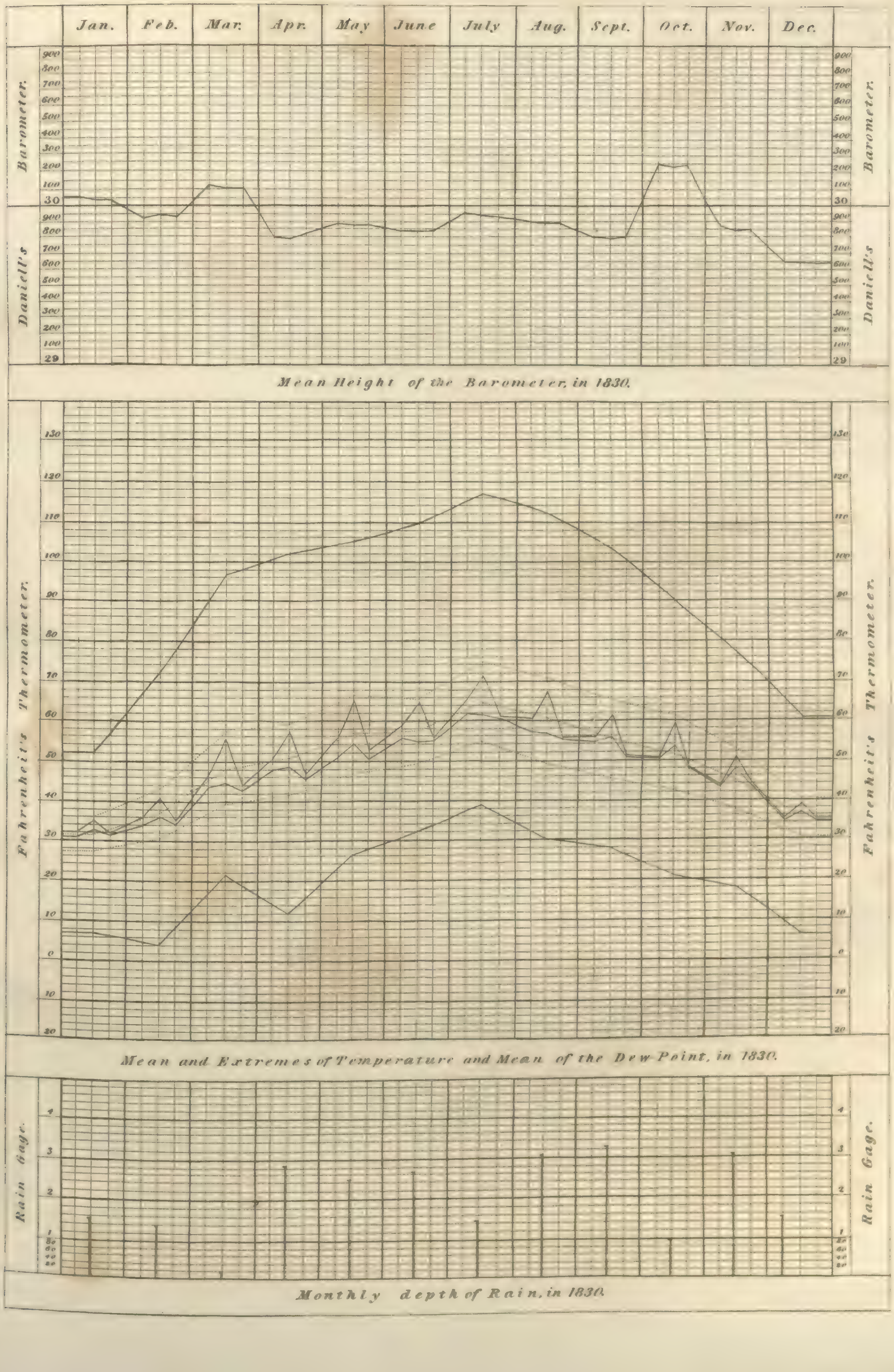
31 days.

Amount of Rain..... 1.54 inch.

Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1830; deduced from the Observations recorded in the preceding Journal.

1830.	Pressure.								Temperature.											
					Mean at				In the Shade.			Mean at				In Sun's Rays.		Terrestrial Radiation		
Months.	Max.	Min.	Med.	Range of Barom.	Morn.	Noon.	Night.	Mean of the three Observations.	Max.	Min.	Med.	Morn.	Noon.	Night	Mean of the three Observs	Max.	Min.	Max.	Min.	Med. of Sun and Radn.
Jan. . .	30.787	28.720	30.043	1.067	30.052	30.036	30.041	30.043	45	10	31.7	32.0	34.9	31.6	32.8	52	30	32	7	31.4
Feb. . .	30.401	29.381	29.937	1.020	29.938	29.950	29.936	29.941	59	10	36.6	36.0	40.6	34.8	37.2	72	27	45	4	37.4
March	30.614	29.498	30.116	1.116	30.128	30.109	30.105	30.114	75	31	48.3	46.3	55.5	43.9	48.6	97	48	45	21	51.3
April .	30.283	29.246	29.800	1.037	29.793	29.777	29.820	29.796	77	24	50.7	50.5	57.6	46.5	51.5	102	39	52	12	56.0
May . .	30.328	29.316	29.878	0.912	29.879	29.879	29.880	29.879	81	35	56.5	55.4	65.4	52.3	57.7	105	56	52	26	61.8
June. .	30.150	29.415	29.834	0.735	29.830	29.831	29.837	29.832	81	39	57.5	58.9	64.7	55.5	59.7	110	63	55	32	64.8
July . .	30.407	29.724	29.940	0.683	29.957	29.941	29.934	29.944	88	45	64.2	65.9	71.3	61.0	66.1	117	73	60	39	73.0
Aug. .	30.303	29.291	29.889	1.012	29.900	29.888	29.880	29.889	80	38	60.1	60.5	67.1	55.9	61.2	112	77	58	30	70.2
Sept. .	30.411	29.211	29.793	1.200	29.793	29.787	29.800	29.793	75	32	55.1	55.9	61.7	50.9	56.1	103	62	52	28	61.6
Oct. . .	30.550	29.685	30.242	0.865	30.244	30.228	30.245	30.239	73	29	51.7	50.6	58.8	48.1	52.5	90	56	52	21	55.8
Nov. .	30.459	29.131	29.856	1.328	29.871	29.841	29.850	29.854	63	-25	44.6	43.6	50.3	44.0	45.9	77	44	47	18	46.2
Dec. . .	30.446	28.910	29.646	1.556	29.654	29.641	29.644	29.646	53	10	35.5	34.9	38.9	34.7	36.2	61	32	43	6	35.8
Aver.	30.429	29.294	29.914	1.135	29.913	29.919	29.911	29.914	70.8	27.3	49.3	49.2	55.5	46.6	50.4	91.5	51.4	41.0	20.3	53.7

1830.	Hygrometer indicating Dew Point.								Scale of the Winds.									Rain.	
	Mean Dew Point at			Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness.	Mean degree of Moisture.	Least degree of Moisture.											
Months.	Morn.	Noon.	Night.						N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	In.	Pts.
Jan. . .	30.8	32.7	31.0	31.5	0.212	1.35	954	685	8	13	5	1	0	2	1	1	31	1	54
Feb. . .	33.8	35.9	33.9	34.5	0.236	2.64	715	715	2	8	0	2	1	4	11	0	28	1	33
March	43.2	44.3	42.4	43.3	0.318	5.26	836	472	0	4	5	2	5	9	4	2	31	0	18
April .	47.7	48.8	45.0	47.1	0.336	4.36	869	457	0	1	5	3	5	9	5	2	30	2	84
May . .	50.9	54.0	50.1	51.7	0.425	6.01	817	457	2	1	3	6	2	7	7	3	31	2	47
June. .	55.6	54.2	54.7	54.8	0.473	4.85	853	488	1	2	4	1	0	10	8	4	30	2	62
July . .	61.7	61.4	60.2	61.1	0.579	4.96	875	457	0	1	5	0	8	5	12	0	31	1	46
Aug. .	57.3	56.5	55.3	56.4	0.498	4.79	858	524	0	1	2	1	3	8	14	2	31	3	05
Sept. . .	54.4	55.4	50.6	53.5	0.452	2.65	910	574	0	0	0	0	6	12	10	2	30	3	21
Oct. . .	50.4	52.9	47.9	50.4	0.406	2.08	931	634	3	3	5	1	7	2	8	2	31	0	98
Nov. .	43.4	47.8	43.7	44.9	0.338	1.00	965	680	0	0	6	0	13	6	5	0	30	3	05
Dec. . .	34.1	36.5	34.1	34.9	0.239	1.25	959	677	4	2	6	4	0	5	5	5	31	1	54
Aver.	46.9	49.2	45.7	47.0	0.378	3.43	878	568	20	36	46	21	50	79	90	23	365	24	27


Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Barometer.
Daniell's
900
800
700
600
500
400
300
200
100
30
29
Mean Height of the Barometer, in 1830.
Fahrenheit's Thermometer.
130
120
110
100
90
80
70
60
50
40
30
20
10
0
10
20
Mean and Extremes of Temperature and Mean of the Dew-Point, in 1830.
Rain Gage.
4
3
2
1
Monthly depth of Rain, in 1830.

XXXVIII. *On the Beneficial Effects of the Accumulation of Sap in Annual Plants.* *By* Thomas Andrew Knight, *Esq. F.R.S. President.*

Read December 20, 1830.

Biennial plants very obviously form in one season the sap, which they expend in the following season in the production of blossoms and seeds; and the capacity of the reservoirs they form is greater, or less, in proportion as external circumstances are more, or less, favourable. Trees also (as I conceive myself to have satisfactorily proved in the Philosophical Transactions) generate in a preceding season, or seasons, the sap which feeds, in the spring, their unfolding blossoms and young leaves. Annual plants, on the contrary, possess no such reservoirs; and they must generate, in each season, all the sap which they can expend, exclusively of the very small portion derived from the seeds, from which they spring. But by appropriate management, and creation of Varieties, Annual Plants may be made to accumulate, in one period of their lives, the sap which they expend in another, with very great advantages to the cultivator.

The first produced female blossoms of the Melon Plant, particularly of the larger and superior varieties, do not often set; and if they set, the fruit they afford never attains as large a size, or as much excellence, as the same plants, at a more mature age, would have given to it under the same external circumstances. This, I imagine, arises not only from the different quantity, but from the different qualities, of the sap in the young, and in the more mature, plant; for I have found the sap of very young Birch and Sycamore trees to be specifically much lighter, and to contain much less

saccharine matter, than the sap of trees of greater age of the same species, and growing in the same soil, and in the same seasons. Under the influence of abundant light, in those climates in which the Melon was placed by nature, the first formed fruit probably acquires a high state of perfection, possibly greater than it can ever be made to acquire in less favourable climates. But this I am much disposed to question, and to believe that, by proper management, the Melon may be made to acquire in the climate of England a degree of excellence, which it is very rarely found to possess in any climate; and that the degeneracy of the finest varieties may be totally prevented.

Very young plants of the sweet Melon of Ispahan (the variety which till within the present year I have chiefly cultivated) very rarely shew fruit; and in my Melon House I never suffer a lateral shoot, or blossom of this variety, to be produced at a less distance from the root than that of the fourteenth or fifteenth joint above the seed-leaves: and when I am anxious to obtain the fruit, and seeds, in the highest state of perfection, I do not suffer a blossom to be produced nearer the root than its eighteenth, or twentieth, joint. Under this mode of management, the expenditure of sap, being confined to the extremity of a single stem, is very small comparatively with the creation of it, and it consequently accumulates, and the fruit is therefore most abundantly nourished,—I conceive more abundantly, than it usually is in any natural climate: and its growth is always enormously rapid.

The striped and green Hoosainee Melon Plants, of which I received seeds from the Horticultural Society in the last spring, being much disposed to bear fruit, produced blossoms at their third joints; but being desirous of obtaining the fruit, and seeds of those varieties in the highest possible state of perfection, I subjected those varieties to the same mode of management; and I believe with the best success, though I am ignorant of the merits of those varieties under other circumstances.

The fruit of the striped Hoosainee Melon Plant requires a very long period to attain maturity, after it has attained its full growth, and after it has apparently ceased to draw much nourishment from the plant. During this period, I conceived, that the plants, having all their foliage in a perfectly healthy state, must be in the act of generating much more sap than they were expending, and I therefore suffered two plants, from which I took off the fruit in the end of August, to remain wholly unpruned. Much fruit was in consequence soon offered, and I obtained very good Melons for any season, and perfectly well grown, in the latter end of the last month (November) which fruit, I do not entertain any doubt, was chiefly nourished by sap generated in the month of August.

The quality of some Ispahan Melons, which I have sent to the Society, has afforded, I believe, satisfactory evidence that that variety has not become deteriorated by having been raised through many successive generations in the unfavourable climate of this place: but the following statement I think, affords strong evidence that, like other highly improved varieties, it does degenerate under our ordinary modes of culture. Sir Harford Jones Bridges, from whom I, many years ago, first received seeds of this variety, informed me in the beginning of the last year, that it had so much degenerated and diminished in size, that he had ceased to cultivate it. He then received a few seeds from me, from which he assured me, in the last month, that he had obtained Melons in the present year, scarcely inferior to any he had eaten in Persia;—conclusive evidence, I think, that the finest Persian varieties of the Melon do not necessarily degenerate in the climate of England.

Every gardener, who has been in the habit of raising cucumbers in winter, perfectly well knows the advantages of raising his plants in July, or August, and preventing their expending themselves in the production of blossoms, or fruit, till they have been introduced into the stove. The general opinion of gardeners is, that such

plants succeed best only because their stems are more firm and ligneous, than those of young plants: but I feel confident that the real cause of their succeeding best is the existence of accumulated sap within them. I have a Melon plant now growing in the stove, which sprang from a seed sown in the end of July; but upon which no fruit was made to set till the 1st day of November. The plant possesses abundant foliage, and the fruit has grown tolerably well, and it will, I conclude, be ripe about Christmas. Upon the 23d of October I placed a blossom, which had been produced by a Dampsha Melon Plant, from which I had a few days before taken the fruit, within the distance of an inch of a very warm flue, where the temperature of the air was never below 86°. In this situation the fruit set well, and grew with most extraordinary rapidity, though it was so near the front wall, and so far (nearly three feet) from the glass, that no direct ray of the sun could fall upon it. At the end of seven days precisely from the period when the pollen was put into the flower, I measured the fruit, when it was seven inches long, and seven inches and a half in circumference. On the 10th day the fruit suddenly ceased to grow, having apparently exhausted the reservoir, whence it drew nutriment, and the plant withered; on the fourteenth day the fruit was gathered, when it weighed very nearly a pound and a half. If the days had been long, and the weather bright, the creation of sap would, I conclude, have nearly kept pace with the very rapid expenditure of it; and the plant would not have died, as it apparently did, of exhaustion.

By delaying the period of sowing the seeds of many species of plants (the Turnip and some varieties of the Cabbage afford examples) those, which would have afforded flowers and seeds within the same season, form reservoirs of accumulated sap in autumn, which becomes, during winter, the food of man, and other animals.

Proportionably late varieties of different species of annual plants

generate, in one part of their lives, the sap which they expend in another. I, every season, plant in the beginning of June, and a little earlier, a large quantity of the very late variety of pea, which bears my name; and by supplying the plants abundantly with water I prevent (as I have stated in a communication to the Society many years ago) to a very great extent the injurious effects of mildew: and by these means I regularly obtain a most abundant supply of pease in September and October, and of better quality than I can obtain in the month of June. In this case the sap which is prepared in the summer is obviously expended in the autumn.

The good effects, which I have proved to arise from planting large tubers of the potatoe plant, obviously spring from the large accumulation of sap in them. Fed by means of this, not only a large breadth of foliage is produced and exposed to sight more early in the year; but that foliage contains much disposable organisable matter, which once formed a part of the parent tuber. Any person who will pay close attention to the growth of produce of early crops of potatoes, which have sprung from large tubers, will readily obtain ample evidence of the truth of this position. The variation in the comparative growth of fruits of different species in similar seasons frequently arises, I have good reason to believe, from the more, or less, perfect state of the reservoir formed in the preceding year; and every experienced gardener knows that under any given external circumstances, the blossom of his fruit trees sets best, when the preceding season has been warm and bright, and when his trees, in such season, have not expended their sap in supporting heavy crops of fruit.

Note by the Secretary.—The quality of the Ispahan Melons referred to in the preceding paper, was found, when the fruit was tasted at the house of the Society, to be of the highest excellence which it is supposed that the Melon is capable of attaining in this country.

XXXIX. *Notes upon some French Stewing Pears.* *By* John Lindley, *Ph. D. F. R. S. Assistant Secretary.*

Read February 19, 1833.

If it has been an object of great horticultural interest to improve the varieties of the Pear which are intended for the dessert, it is scarcely less important to obtain a better class of stewing Pears than those in common use in this country. The varieties that are now almost exclusively cultivated, are either the Catillac or the Uvedale's St. Germain, both of which are large and handsome sorts. The former is tolerably hardy, and bears pretty well as an open standard: but its fruit is so heavy that it is very subject to be blown down by high winds, and so rendered unfit for keeping; the latter will only bear when trained to a wall. Both become a bright clear red when stewed, but their flavour is chiefly owing to the substances added to them in the process, and they have also the defect of being incurably gritty. Another variety called the Black Pear of Worcester, or Red Warden, is also occasionally met with in English gardens, but it is still more gritty than the others.

A far better race of stewing Pears is cultivated in France, which are very hardy, most abundant bearers, so light that they are but little damaged by storms, long keepers, not gritty when stewed, and very high flavoured. As they are almost unknown in this country, it has been thought that a short account of them, illustrated by figures of the most remarkable, would prove of interest to the public.

From those in the Garden we have selected four as being the most valuable; these are,—1. The Bezi d'Héry; 2. the Bequêne Musqué; 3. the Chaptal; and 4. the Double de Guerre.

1

2

3

4

1. The Bequène Musqué Pear.
2. The Bézi d'Héri Pear.
3. The Chaptal Pear.
4. The Double de Guerre Pear.

Wm Withers dell

1. The Bezi d'Héri.

Syn. Bezi d'Héri. *Langl. Pom.* t. 66, f. 3. *Hill, Treat.* 343. *Forsyth, Treat.* 166. *Knoop, Pom.* 117, t. 7. *Mayer, Pom. Franc.* 3, 52, t. 233. *Kraft, Pom. Aust.* 2, 19, t. 151. *Diel, Pom.* 6. 97. *Lindl. Guide,* 354. *Hort. Cat. ed.* 2. No. 120.
Bezideri. *Mill. Dict.* No. 45.
Französische Kumelbirne. *Christ, Pom. Handw.* 190.

Fruit middle-sized, roundish oval; the eye quite open, having the segments of the calyx diverging. Stalk slender, woody, about an inch in length, nearly straight, inserted in a small cavity. Skin smooth, yellowish, sprinkled with numerous small dark coloured dots, the side next the sun acquiring a blush of red. Flesh in its natural state whitish, firm, but with very little grittiness, sweet with an anise flavour.

This sort was originally found in the forest of Héri, between Rennes and Nantes in Bretagne. It is mentioned by La Quintinye and other early writers among the French; and in this country it appears to have been known previous to 1712, for it is then included in a Report of Pears cultivated at Little Chelsea, drawn up by Mr. Lutterel, and to be found in Vol. II. p. 42, of the first series of these Transactions. Hitt in his Treatise, 1757, recommends it as a baking Pear proper to plant against a north wall. In this situation it would no doubt succeed, but as a standard it bears remarkably well.

When stewed it becomes very tender, without any trace of grittiness; its flavour is peculiarly rich and agreeable; its colour is pale brown, not pink, if stewed in sugar only. Keeps till the end of February.

2. The Bequêne Musqué.

Syn. Bequêne Musqué. *Hort. Cat. ed.* 2. No. 45.

Fruit middle-sized, oblong, tapering a little towards the stalk, which is long and slender, inserted in a small cavity. Eye open and prominent. Skin smooth, pale yellow,

profusely dotted with brown. Flesh whitish, crisp, perfumed, but not agreeable in its raw state.

This is one of the old French Pears, but has not been met with in any collection in this country. It is very hardy, bearing most abundantly as an open standard. The fruit keeps till January. When stewed it becomes light brown, very tender and high flavoured; and is the best sort I have yet met with for such purposes.

3. The Chaptal.

Syn. Chaptal. *Hort. Cat. ed.* 2. No. 177.

Fruit tolerably large, obtusely pyramidal, or frequently obovate. Stalk generally inserted rather obliquely, in consequence of the projection of the fruit on its upper side. Eye open, in a moderately large, regularly formed cavity. Skin greenish, for the most part covered with russet brown; rarely in this climate it acquires the reddish tinge next the sun which it does in France. Flesh firm, whitish, sweet, mixed with some astringency in its raw state.

We have only received this from the collections of M. Noisette of Paris, and of the late M. Bosc. It is very hardy, and bears freely as a standard. Its stewing qualities are of the first class. In flavour it nearly equals the Bequêne Musqué; but unlike that sort it becomes bright pink, not brown. Keeps till the end of February.

Was raised by M. Hervy of the Luxembourg Garden at Paris; and named by him in honour of M. Chaptal, Minister of the Interior at that time.

4. The Double de Guerre.

Syn. Double de Guerre. *Hort. Cat. ed.* 2. No. 246.
Double Krijgs. *Hort. Trans. Vol. IV. p.* 277.
Double Krijs.

Blossoms remarkably large. Fruit large, and of a very handsome, regular, oblong-obovate form; rather more convex on one side than the other, but quite free from angles in its outline. Eye open and rather prominent. Stalk short, tolerably thick, and

inserted somewhat obliquely. Skin for the most part thinly coated with brownish russet, the sunned side acquiring a reddish colour. Flesh firm in its crude state, yellowish white, sweetish mixed with slight acid, but by no means proper as a dessert fruit in its natural state.

Very hardy; a copious bearer; will remain sound till February. It was received from Mr. STOFFELS of Mechlin, where it is in high estimation as a culinary Pear. We find it less excellent than the three preceding, but better than either the Catillac or Uvedale's St. Germain. This has already been noticed in the Transactions, Vol. IV. p. 277, but the account there given is imperfect, and the statement that the Petit Krijgs is the most esteemed in Belgium on account of its bearing, is not confirmed by our experience in the Garden. We find it too small to be worth cultivation.

Besides the four Pears now described, there are two others that deserve notice, although they are of inferior quality. One of these is the *Francréal d'Hiver*, a sort obtained from M. Bosc of the Luxembourg Garden at Paris, and also from M. NOISETTE; it becomes a bright light purple when stewed. The other is the *Belissime d'Hiver*, a handsome winter Pear received also from M. Bosc. It is hardy and bears well as a standard, and the fruit keeps sound till March. Its chief fault is that when stewed it is not altogether destitute of grit, and that it becomes too soft.

XL. *On the Cultivation of the Vine.* *By Mr.* John Smith, *Gardener to* D. Alexander, *Esq. St. Matthew's, Ipswich. Communicated by the Ipswich Horticultural Society.*

Read August 16, 1831.

That the culture of the Vine forms a very important part of a gardener's business, no one, I think, will attempt to deny; and, as it is a plant which requires the free use of the knife, great variation in the mode of pruning is in use by different practitioners, with which it is not the intention of this communication to interfere, because differences in local circumstances frequently demand of the operator a variation in his practice. Notwithstanding this, every one has a right to exercise his own judgment, and make use of the one he considers best. In claiming this right for myself, I am free to acknowledge, that, upon an average of circumstances, I am decidedly in favour of the long running system, acknowledging, at the same time, it has its objectionable points. The principal of these is, that, in an early forcing house, where the shoot has been laid in its whole length, of perhaps from fifteen to fifty buds, there is great uncertainty in such shoot bursting its eyes from the one end to the other; nothing being more common than a destitution of both fruit and foliage in the lower part of the vine, while the upper part is crowded to excess with both. Authors have recommended different operations for the prevention of this evil, such as serpentining, disbudding, &c.; and the same have been acted upon by many practitioners, but, ending without success, they have, where early forcing was required, laid aside the whole system, and for it substituted one in which they possessed but little confidence as to the crop the following season. For myself, believing the merits of the running

system to be great, I determined to make a course of experiments founded, as near as my judgment would permit, on sound physiological principles. In the first place, I considered whether or not every bud contained a latent vitality equal to that of the seed, and daily observation, with some experience, furnishing me with an answer in the affirmative, I concluded that the fault lay not in the buds, but in a defect of the union with that principle which causes their developement, namely, heat. Upon this principle I commenced, selecting a weak piece of wood at the lower part of a black Damascus grape vine, which I ran its whole length in summer; being provided with wood for a crop, independent of it, I determined, after making the intended experiment, to cut it out entirely. The following autumn, at the time of pruning, I found it had thirty-two sound well-ripened buds, the whole of which I retained. Knowing that every shoot possesses a natural inclination to break its extreme buds first, I considered that the counteraction of this disposition was every thing needful to be accomplished. I therefore, when the external air was cold, tried the heat of a hot-house near the glazed surface, and found the thermometer averaged from $1\frac{1}{2}$ to 2 degrees of heat higher at 10 or 12 inches from the glass than at 1 inch, or nearly in contact with it. The roof of the house in which the experiment was made is two lights deep, and the trellis is attached to the rafters, at an equal distance, consequently the vines, being fixed thereto, are at a greater distance from the glass at the upper part of the house by the thickness of the lower light, on which the upper one slides, and therefore, in midwinter, are in a warmer air; of course, this assists the disposition of the upper buds in their natural habit of breaking first. To counteract this I fixed the shoot at about $10\frac{1}{2}$ inches from the glass at its base, bringing its extreme end close to the glass, by a gradual inclination, at about the 26th bud, and running the remaining part in close contact with the glass to its end. In the

beginning of February the plant began to break its eyes, and, as I purposely kept the house rather dry, a very fine piece of wood, on the same plant, but trained to the trellis, broke only eight buds at its extreme end, while the one above described broke every bud, and nearly of equal strength, except those at the extreme end, which, by lowering a little from the glass, broke also; and this piece of wood, of about half an inch in diameter, with 32 buds, shewed 65 healthy bunches of grapes, or two on every bud, with an additional one on the fifth bud from the base. Having satisfied my mind in bringing an important desideratum to a settlement, I headed it back to its 20th bud; and though I intended cutting it out entirely in the outset of the experiment, I now chose rather to leave about half a dozen bunches on it, disbudding, of course, the remainder, &c. &c. That to study the variation in the heat of the glazed surface of a hothouse, caused by radiation, is a subject worthy our attention will be readily admitted; for, although it appears that the uppermost surface is the coldest in midwinter, yet an effect directly contrary to it is produced as the season advances, and a practice, contrary to the one above stated, is required, which can only be conveniently and effectually obtained by the use of a moveable trellis, fixed at its lower part, but capable of elevation at its upper end. This would not only secure, by its use in the dreary months of winter, a good breaking of the vine at an early season, but it would give an advantage above the fixed trellis in other particulars, especially in the prevention of a disease common to grapes at their approaching a state of maturity; for whatever conclusion experience may end in as to the cause of the disease, it is certain that the rays of the sun falling upon condensed vapour produces an air not very fit for a delicate plant, loaded with fruit, to live and to flourish in; but, as Mr. Judd expresses it, one that is calculated to produce an effect equal to scalding, in consequence of

which the fruit becomes deformed, and ceases to acquire that state of perfection it otherwise would do. But suppose the rays of the sun to raise the thermometer in a hot-house to 90°; and suppose that, with all the air that can be admitted, it rises still higher, say to 95°, at 10 inches from the glass it would be considerably increased, say 10°; while, at a similar distance, or at one foot lower, it will be found that it is increased very little; consequently, by the use of the moveable trellis, we should have an opportunity of lowering the vine, and thereby placing it in a more temperate atmosphere, of from 5 to 6, 7, or 8 degrees.

XLI. *Observations on the Quality of the Oak Timber produced in Great Britain.* *By* William Atkinson, *Esq. F. H. S.*

Read January 15, 1833.

There are only two species of Oak that are considered as natives of Great Britain and Ireland—the Quercus pedunculata, and Quercus sessiliflora. Professor Martyn in his edition of Miller's Dictionary mentions a third, which he calls Durmast, said to be growing in the New Forest in Hampshire; but from a variety of specimens obtained for me through the kindness of the Secretary to the Woods and Forests, and from having gone through part of the Forest myself, I am satisfied there is no such distinct species. The woodmen in the Forest call certain oaks that have dark coloured acorns (Dunmast), but those dun coloured acorns are found both of the Q. pedunculata and Q. sessiliflora; I have raised trees from them, and consider them as only accidental varieties, and that the colour of the acorns may be occasioned by something peculiar in the soil.

The Q. pedunculata is called by some writers Q. robur, and by others the Q. sessiliflora is called Q. robur; to prevent mistakes I think it better to adopt the name Q. pedunculata. This kind is easily known by the acorns having long stalks, and the leaves having very short footstalks, or in some specimens hardly any. In the Q. sessiliflora, the leaves have footstalks from a quarter to one inch in length, and the acorns sit close to the branch, having hardly any stalks.

With respect to the qualities of our two native oaks; the Q. pedunculata contains a great quantity of the silver grain which shews when the wood is planed what workmen call the flower in the wood. In consequence of this the wood splits clean and easy, and is best adapted for split paling and laths. It is also a

stiffer wood, and though it may be broken with a less weight than the Q. sessiliflora, yet it requires a much greater weight to bend it, and is therefore best calculated for beams, or to bear the greatest weight without bending.

The Q. sessiliflora contains so small a portion of the silver grain or flower, that wood of that kind from old buildings has generally been mistaken for Sweet Chesnut (Castanea Vesca); during the last thirty years I have taken every opportunity of procuring specimens of wood from old buildings, and particularly what the carpenters called Chesnut, but I have never in a single instance seen a piece of Chesnut from an old building; what has been taken for that wood I have always found to be the Q. sessiliflora, mistaken for Chesnut from its deficiency of the flower or silver grain.

The roof of Westminster Hall has been said to be Chesnut; while it was under repair I procured various specimens from different parts of the roof, the whole of them were oak, and chiefly the Q. sessiliflora. Most of the black oak from trees dug out of the ground, I have found to be of the same kind. From finding the wood from the oldest buildings about London to be chiefly of the Q. sessiliflora, I should suppose that some centuries ago the chief part of the natural woods were of that kind;* at present the greater part of the Oak grown in the South of England is the Q. pedunculata.

Specimens of Oaks that I have procured from different parts of Yorkshire and the County of Durham, have been all Q. sessiliflora, which is very scarce in the south. There are some trees of it at Kenwood, the Earl of Mansfield's near Highgate, which I believe to be one of the oldest woods near London, and a greater part of the Q. sessiliflora, appear to be trees from old stools.

* Mr. Atkinson's opinion upon this subject is confirmed in a remarkable manner by the discovery that the Oak, in an extensive sub-marine forest at Hastings, is Q. sessiliflora. *Note by the Secretary.*

Q. sessiliflora appears to grow equally well with Q. pedunculata, it is a handsomer tree in the foliage, and from finding so much of it sound in old buildings I suspect it may be the most durable. It bends from a weight much sooner than Q. pedunculata but requires a much greater weight to break it; from its toughness I consider it the best calculated for ship timber. The old Sovereign of the Seas was broken up after forty seven years service, much longer than the general durability of ships, and as the wood the ship was built of was had from the north of England, it is very probable it was the Q. sessiliflora.

Turkey Oak, (Quercus Cerris) is a native of the Levant, and I believe is found in many parts of Poland, particularly about Warsaw. The introduction of this oak into England has been within the last century, therefore we have very few trees of large dimensions. The largest I have seen are at the Marquis of Downshire's, East Hampstead in Berkshire. I had never been able to obtain a specimen of the wood grown in England, till about five years ago, when two trees were cut down at East Hampstead, and the wood was made into doors for the principal rooms of the house; it is much finer in the grain than our British oak, or foreign wainscot, it takes a better polish, and is more beautiful than any other oak I have ever seen. From only a single specimen I had broken, it was not so strong as our native oak, but equal in toughness; but my specimen being rather cross-grained, it was not a correct experiment, and I suspect it is equal in strength to our oak. For all ornamental purposes where the wood has to be polished it is superior, and must be a profitable tree to plant, as it grows much quicker than our common oaks, and I have seen it thrive rapidly in poor land.

Oak timber has for a great length of time been imported into this country from Holland by the name of Dutch wainscot, which is generally used for floors, doors and furniture; it is more straight in its growth, tender, and more easy to work than British oak, does not

require so much seasoning, and stands better without warping, but it is not equal in strength or durability to British oak.

Some years ago I procured acorns from the Black Forest in Germany, where this wood is grown. Three varieties were sent me by a botanist who collected them in the Forest; some of the trees from the acorns are now about six feet high, but I can only discover two distinct species, which appear to me to be exactly the same as our Q. pedunculata and Q. sessiliflora. The Dutch wainscot being from a natural wood, and the trees growing close, may account for the straightness of the wood, and its being more tender than our oak, which differences may also partly be owing to the soil.

There is no other oak that appears to thrive in this country, or likely to be worth cultivating for timber, except the white oak (Quercus alba) of North America. Of this there are not many large trees in England, but the young trees appear to grow well, and I have seen them do best in a peaty sand. The white oak imported from America, is heavier than British oak; it appears to be as strong, and is more difficult to work. There are a great variety of oaks in America, but all except the white oak appear to be of an inferior quality.

As ornamental trees, there are many of the American kinds that are beautiful in their foliage, and from the various and rich tints the leaves take in the autumn, are a great ornament to landscape scenery and ought to be planted more than they have been, as ornamental trees in parks and pleasure grounds.

XLII. *On the Advantages of irrigating Garden Grounds by means of Tanks or Ponds. By* Thomas Andrew Knight, *Esq. F.R.S. President.*

Read August 7, 1832.

The quantity of water which may be given with advantage to plants of almost every kind, during warm and bright weather, is, I believe, very much greater than any gardener, who has not seen the result, will be inclined to suppose possible; and it is greater than I myself could have believed upon any other evidence than that of actual experience.

My garden, in common with many others, is supplied with water by springs, which rise in a more elevated situation; and this circumstance afforded me the means of making a small pond, from which I can cause the water to flow out over every part of my garden whenever I wish. I am thus enabled to irrigate my strawberry beds whilst in flower, and my Alpine strawberry beds, and plants of every other kind, through every part of the summer; and I cause a stream to flow down the rows of celery and along the rows of brocoli, and other plants, which are planted out in summer, with very great advantage. But the most extensive and beneficial use which I make of the power to irrigate my garden by the means above mentioned, is, in supplying my late crops of peas abundantly with water; by which the ill effects of mildew are almost wholly prevented; and my table is most abundantly supplied with very excellent peas through the month of October; as I have stated in a former communication. Several of my friends, who have caused large quantities of water to be carried, have obtained abundant crops late in the autumn of the variety of pea, which bears my

name; but they have complained that the birds have eaten the whole crop. This will almost always occur where means are not taken to prevent it: but there are only two species of bird which ever break open the pods of green peas, the large black-headed, and the blue titmouse (the Parus major and Parus cæruleus of Linnæus) and both these are very easily caught. The coal titmouse, the nut-hatch, the chaffinch, and the robin, will eat the peas when the pods are opened; but neither of these ever break them. For the purpose of taking such birds, I employ a little trap, which I invented when a school-boy, and which secures without injuring them, and enables me to release the unoffending; and I do not find the smallest difficulty in preserving my crops of peas in any season.

When water is delivered in the usual quantity from the watering pan, its effects, for a short time, are almost always beneficial, by wetting the surface of the ground. But if water thus given be not continued regularly, injurious effects frequently follow; for the roots of plants (as I have shewn in the Philosophical Transactions, in a paper upon the causes which direct the roots) extend themselves most rapidly wherever they find proper moisture and food; and if the surface alone be wetted, the roots extend themselves superficially only, and the plants consequently become more subject to injury from drought, than they would have been if no water had been given to them; a circumstance which can scarcely have escaped the notice of any observant gardener. When, on the contrary, the soil is irrigated in the manner above recommended, it is wetted to a great depth; and a single watering, once in eight or ten days, is, in almost all cases, fully sufficient.

I have found the advantage of being able to command, by the means abovementioned, abundant water at all seasons, and at very small expence, so great, that I feel confident that a market gardener could, in many cases, afford to give as much rent for one acre as he could under ordinary circumstances give for two acres; for he

would not only be able generally to command more abundant crops, but, by possessing exclusive advantages, he would often, in unfavourable seasons, be enabled to raise abundant crops of articles, which in such seasons, usually take a very high price. In selecting the site of a garden the advantage of irrigating it, by the means above-mentioned, may very frequently be obtained; and the number of gardens, above which a small tank or pond might be easily made, is probably much greater than at a first view will be supposed.

It may be objected that excess of rain is more often injurious in the climate of England than drought; but in wet seasons plants suffer owing to want of light, and generally of warmth; and I feel confident that if the same quantity of rain, which the soil receives in our wettest summer, were to fall only between the hours of nine in the evening and three in the following morning, and the sun were to shine brightly and warmly through the whole of the days, no injurious effects would follow; and every experienced gardener knows with what luxuriance and rapidity plants of every species grow in hot and bright weather, after the ground has been drenched with water by thunder storms.

List of MEDALS *presented to* LOCAL HORTICULTURAL SOCIETIES *within the United Kingdom for the year* 1830.

By the CALEDONIAN HORTICULTURAL SOCIETY, to ROBERT SPITTAL, Esq. for his essay on the diseases of plants.

By the ABERDEEN HORTICULTURAL SOCIETY, to Mr. WILLIAM DAVIDSON, gardener, of Causeway End, Aberdeen, for his superior exhibitions of flowers; for his valuable communications respecting the cultivation of the common bramble, and for his great success in the cultivation of several North West American plants which he had naturalized in the open ground.

By the BRISTOL HORTICULTURAL SOCIETY, to Mr. JOHN MILLER, for his pre-eminent attainments in the various departments of the science of Horticulture.

By the DUMFRIES HORTICULTURAL SOCIETY, to Mr. JAMES WEBSTER, gardener to JOHN HERRIES MAXWELL, Esq. of Munches, in the parish of Buittle, and Stewartry of Kircudbright, for his exhibitions of fruits of superior quality during the year 1830.

By the DUNDEE HORTICULTURAL SOCIETY, to Mr. THOMAS SPALDING, gardener to Mrs. M'NAB, of Athurstine, for his exhibitions during the season.

By the EVESHAM HORTICULTURAL SOCIETY, to Mr. ANTHONY NEW, of Evesham, for the fine and large specimens of asparagus, exhibited by him during the past and present year; and for his communication to the society on his improved method of cultivating the same.

By the GLAMORGAN and MONMOUTHSHIRE HORTICULTURAL SOCIETY, to Mr. THOMAS LAIDLAW, gardener to GEORGE MOGGRIDGE, Esq. of Gabalva, near Cardiff, for his great success in raising grapes, and his general success as a horticulturist.

By the Hereford Horticultural Society, to Mr. William Newman, gardener to R. J. Powell, Esq. of Hinton, for his industry, and for the successful management of the garden under his care.

By the Liverpool Horticultural Society, to Joseph Dwerryhouse, gardener to Mrs. Rathbone, Green Bank, Liverpool, for the general excellence of his productions within the year 1830, which consisted of greenhouse plants, choice fruits, and culinary vegetables of the choicest description.

By the Ross Horticultural Society, to Mr. Lewis Pickering Hatton, gardener to John Cooke, Esq. of the Chase, near Ross, for his exhibitions of fruits, vegetables, and flowers; and also for his superior skill and excellence in raising house and stove plants.

List of Medals presented to Local Horticultural Societies *within the United Kingdom for the year* 1831.

By the Caledonian Horticultural Society, to Mr. William Macnab, superintendent of the Royal Botanic Garden at Edinburgh, for his exhibition of most admirable specimens of many of the most rare and splendid of the Cape heaths, and for his excellent essay on their culture.

By the Evesham Horticultural Society, to Mr. Thomas Hignell, of Tewkesbury, nurseryman, for his numerous specimens of highly flavoured seedling apples, exhibited at the meetings of the society during the last four years.

By the Glasgow Horticultural Society, to Mr. George Aitken, gardener to T. Brown, Esq. at Lanfin, Ayrshire, for a journal of garden work kept by him, with an accompanying relative plan.

By the Hereford Horticultural Society, to Mr. Thomas Hill, gardener to William Patishall, Esq. for his industry and successful attention to horticulture, and for having particularly distinguished himself in the practical branches of it.

List of Persons to whom the LARGE SILVER MEDAL *has been presented by* ORDER OF THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON, *from June* 12, 1832, *to April* 30, 1833.

To Mr. JOHN LEE, F.H.S. for his fine collection of roses, exhibited July 3, 1832.

List of Persons to whom the BANKSIAN MEDAL *has been presented by* ORDER OF THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON, *for Exhibitions at General Meetings of the Society, from* ***June*** **12, 1832,** *to* ***April*** **30, 1833.**

To Mr. JAMES YOUNG, F.H.S. for a collection of roses, exhibited July 3, 1832.

To Mr. WILLIAM SMITH, gardener to the Earl of LIVERPOOL, for specimens of the yellow Noisette rose, exhibited July 3, 1832.

To the LORD GRENVILLE, for a collection of roses, exhibited July 3, 1832.

To Mr. GEORGE WARREN, gardener to H. J. GRANT, Esq. F.H.S. for a Queen pine-apple, exhibited October 16, 1832.

To Mr. ISAAC WHEELER, Beaumont Buildings, Oxford, for seedling chrysanthemums, exhibited December 4, 1832.

To Mr. SEWARD SNOW, gardener to JOHN HORSLEY PALMER, Esq. F.H.S., for an Azalea Indica, exhibited March 5, 1833.

TRANSACTIONS

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The Committee appointed by the Horticultural Society to direct the publication of the Papers read before them, take this opportunity to inform the Public, that the grounds of the choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them, without pretending to answer for the certainty of the facts, or the propriety of the reasonings, contained in the several Papers so published; which must still rest on the credit or judgment of their respective Authors.

It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

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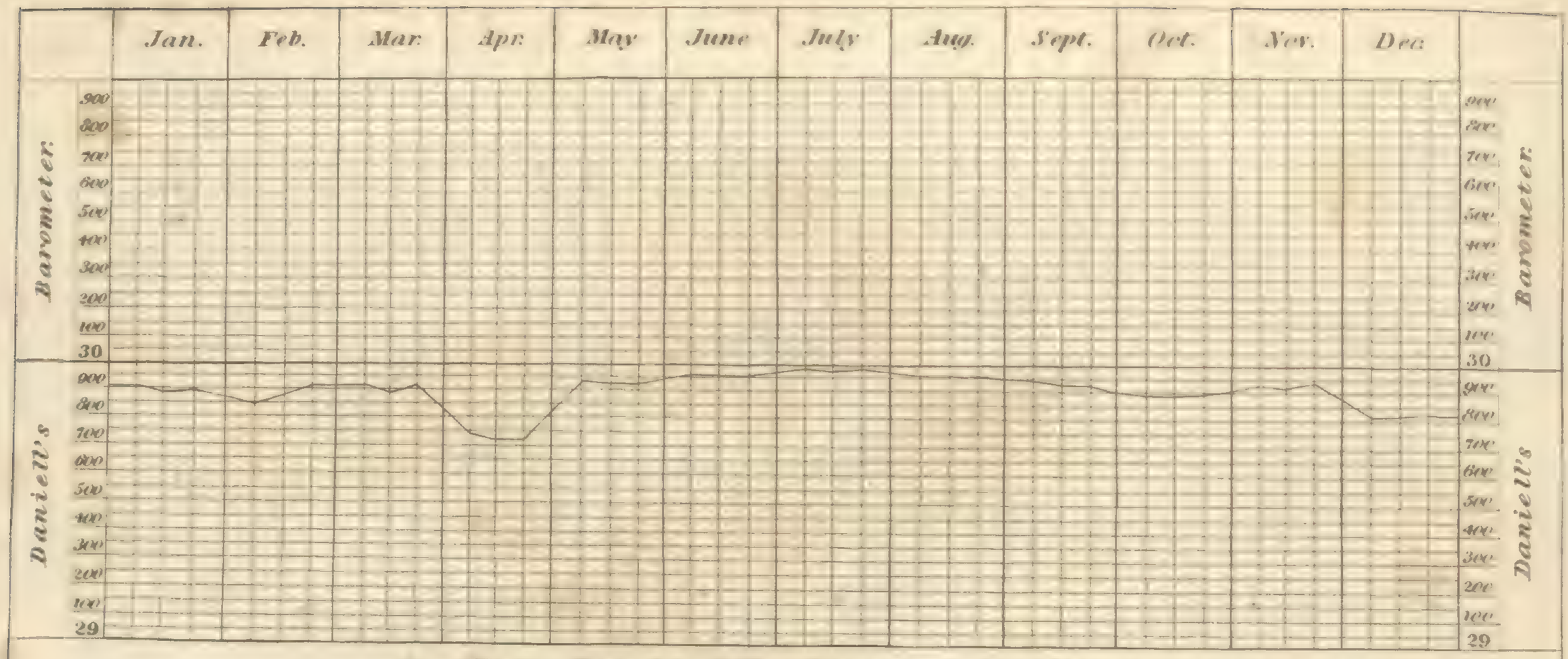
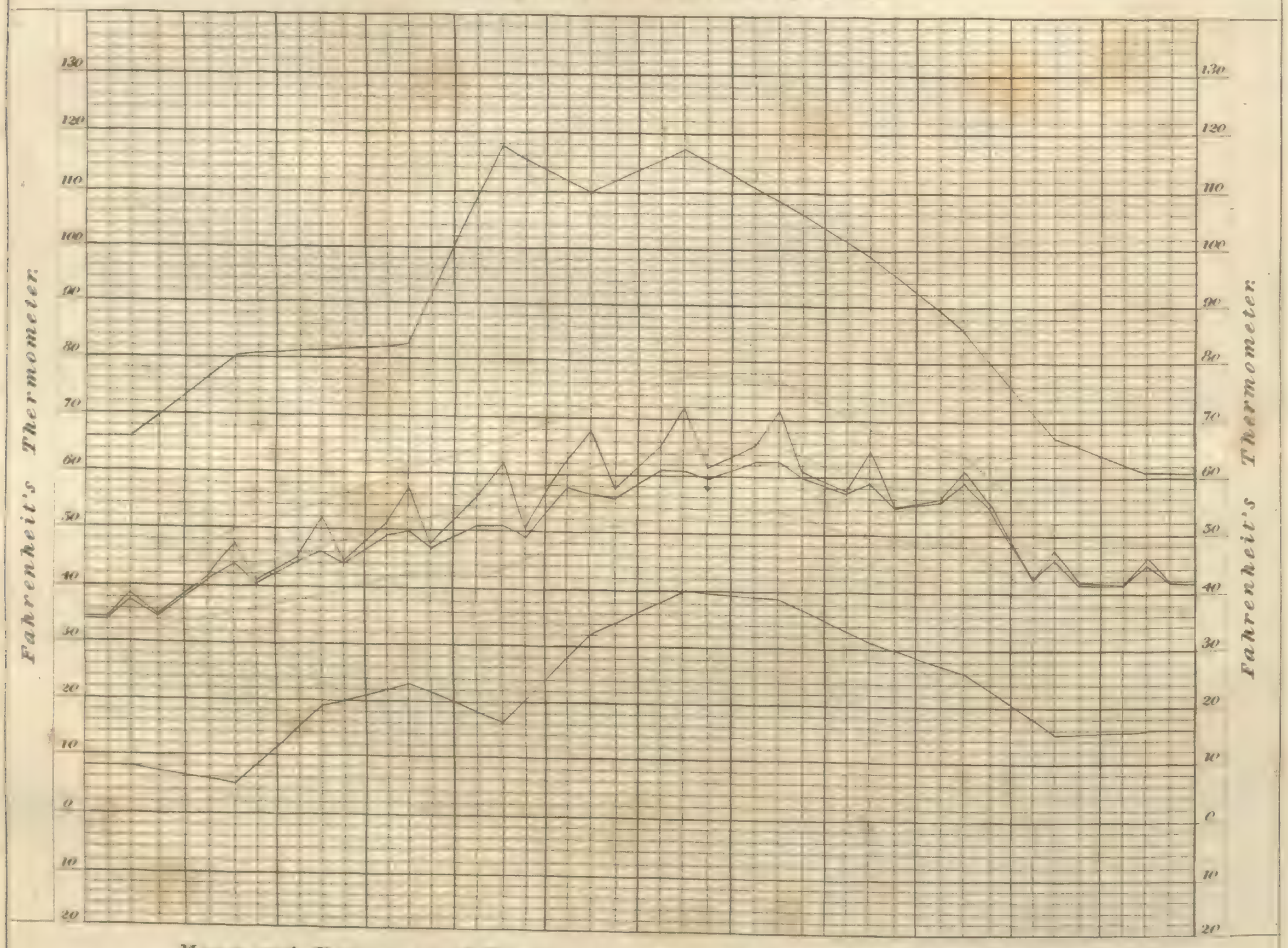
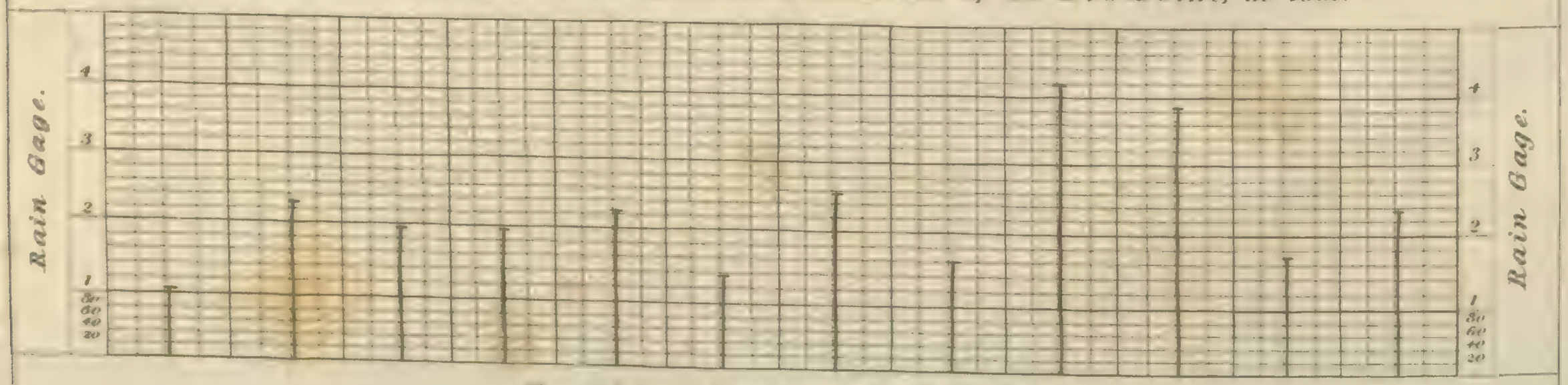


Mean Height of the Barometer, in 1831.



Mean and Extremes of Temperature, and Mean of the Dew-Point, in 1831.



Monthly Depth of Rain, in 1831.

XLIII. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year* 1831. *By Mr.* Robert Thompson, *Under Gardener in the Fruit Department.*

No alteration has taken place in the manner of keeping this Journal.

JANUARY.

	Morning.						Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.818	28	28	—	Fine	29.834	40	38	2	Fine	29.860	37	37	—	Fine
S.	2	—.899	37	37	—	Ditto	—.868	41	39	2	Ditto	—.909	32	32	—	Ditto
M.	3	—.950	38	38	—	Dull	—.918	45	44	1	Dull	—.947	38	38	—	Hazy
T.	4	—.935	36	36	—	Overcast	—.904	37	37	—	Ditto	—.886	37	37	—	Ditto
☾ W.	5	—.975	37	37	—	Foggy	—.899	38	38	—	Foggy	30.037	36	36	—	Ditto
Th.	6	30.250	35	34	1	Fine	30.339	39	35	4	Fine	—.518	31	30	1	Clear & Frosty
F.	7	—.656	27	27	—	Clear & Frosty	—.641	34	34	—	Ditto	—.665	24	24	—	Dense Fog
S.	8	—.653	22	22	—	Frosty Fog	—.568	36	36	—	Ditto	—.431	27	27	—	Frosty
S.	9	—.339	28	28	—	Ditto	—.209	40	40	—	Overcast	—.083	39	39	—	Overcast
M.	10	29.947	40	40	—	Overcast	29.937	41	41	—	Drizzly	—.065	36	36	—	Ditto
T.	11	30.139	33	32	1	Cloudy	30.121	35	32	3	Fine but Cold	—.159	34	33	1	Ditto
W.	12	—.135	36	36	—	Drizzly	—.123	39	39	—	Hazy	—.160	37	37	—	Ditto
Th.	13	—.181	33	33	—	Do. & Foggy	—.166	39	39	—	Overcast	—.211	36	36	—	Ditto
● F.	14	—.221	37	37	—	Ditto	—.188	39	37	2	Dull	—.152	35	35	—	Hazy
S.	15	—.049	32	32	—	Ditto	29.988	33	33	—	Hazy & Raw	29.907	32	32	—	Ditto
S.	16	29.869	32	32	—	Ditto	—.826	32	32	—	Ditto	—.772	34	34	—	Ditto
M.	17	—.647	41	41	—	Foggy	—.625	45	45	—	Slight Rain	—.618	38	38	—	Foggy & Wet
T.	18	—.556	36	36	—	Ditto	—.553	45	45	—	Drizzly	—.650	44	44	—	Ditto
W.	19	—.672	46	46	—	Rainy	—.672	49	49	—	Dull and Hazy	—.654	44	44	—	Foggy
Th.	20	—.447	41	41	—	Damp & Foggy	—.333	45	45	—	Do. with Slight Rain	—.151	42	42	—	Drizzly
☽ F.	21	—.162	42	42	—	Ditto	—.154	47	47	—	Foggy & Wet	—.200	47	47	—	Do. & Foggy
S.	22	—.242	47	47	—	Ditto	—.241	49	49	—	Ditto	—.279	47	47	—	Wet & Foggy
S.	23	—.349	47	47	—	Rainy	—.394	44	44	—	Ditto	—.478	47	47	—	Wet
M.	24	—.519	32	32	—	Sleet	—.542	36	36	—	Cloudy & Cold	—.657	32	32	—	Fine
T.	25	—.857	32	29	3	Clear & Frosty	—.915	34	30	4	Fine but Cold	30.175	27	25	2	Very Clear
W.	26	30.144	28	22	6	Ditto	30.179	33	28	5	Clear & Frosty	—.221	26	24	2	Ditto
Th.	27	—.003	28	27	1	Overcast	29.653	36	36	—	Sleet	29.449	34	34	—	Sleet
○ F.	28	29.707	32	32	—	Fine	—.718	35	32	3	Fine	—.766	30	28	2	Clear
S.	29	—.937	32	32	—	Overcast	—.925	35	27	8	Ditto	—.881	29	29	—	Slightly overcast
S.	30	—.887	26	25	1	Fine with Frost	—.895	33	25	8	Dull	—.923	21	21	—	Frosty & Foggy
M.	31	—.799	27	27	—	Foggy	—.741	36	36	—	Sleet	—.539	28	28	—	Snowing
		29.901	34.45	34.03	.41		29.873	39.03	37.67	1.35		29.883	34.87	34.61	.25	

JANUARY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	45	32	56	30	S	Little			The first fortnight of this month was sometimes foggy, but scarcely any rain fell till the 16th. From that period to the 24th it was wet, with a mild temperature for the season. Lightning occurred on the night of the 18th. On the 29th the Sun's rays were 20° warmer than they averaged during the month. This was succeeded by a dense frosty fog on the 30th, and a very heavy fall of snow from the South on the 31st. Fogs were prevalent throughout the month, and although the quantity of rain was not great, yet owing to the former, the mean degree of dryness was little above saturation.
2	44	31	55	28	W	Ditto			
3	41	33	44	34	S	Ditto			
4	38	36	40	34	SE	Ditto			
5	39	30	41	25	E	Ditto			
6	40	24	53	14	NE	Brisk			
7	40	21	55	15	S	Little			
8	33	25	45	20	SW	Ditto			
9	41	38	43	35	W	Ditto			
10	41	33	44	30	NE	Ditto	.01		
11	37	30	49	26	——	Ditto			
12	39	32	41	31	——	Ditto			
13	38	32	42	31	W	Ditto			
14	39	31	43	29	E	Ditto			
15	33	31	34	29	S	Ditto			
16	41	31	41	30	E	Ditto	.05		
17	45	33	42	30	SE	Ditto			
18	46	33	46	31	S	Ditto	.13		
19	49	40	49	38	——	Ditto	.01		
20	44	40	50	39	E	Ditto	.27		
21	49	44	49	44	——	Ditto	.11		
22	50	46	50	44	SE	Ditto	.10		
23	+50	31	50	30	E	Ditto	.12		
24	34	29	46	20	N	Brisk	.02		
25	32	25	46	17	——	Ditto			
26	32	24	44	15	NE	Little			
27	40	30	49	25	S	Brisk	.20		
28	38	30	49	24	N	Little			
29	33	22	+66	9	——	Ditto			
30	33	—20	35	— 8	NE	Ditto			
31	34	27	33	25	S	Ditto			
	39.93	31.09	45.83	27.09			1.02		

Mean Pressure from the 3 daily observations 29.885 inches.
—— Temperature ..... Ditto ..... 36°.11
—— Dew Point ..... Ditto ..... 35°.43
—— Degree of Dryness ... Ditto ..... .67
—— Degree of Moisture .. Ditto ..... .979
—— Force of Vapour .... Ditto ..... 0.243 inch.
Least observed degree of Moisture ..... .758
Maximum Temperature in the Shade .... 50°
Minimum Temperature in ditto ..... 20°
Maximum Temperature in the Sun ..... 66°
Minimum of Terrestrial Radiation ..... 8°
Mean Temperature of external Air ..... 35°.51

WINDS.

North	4 days.	N. East	6 days.
South	8 ..	S. East	3 ..
East	6 ..	S. West	1 ..
West	3 ..	N. West	0 ..

31 days.

Amount of Rain ..... 1.02 inches.

FEBRUARY.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	29.152	32	32	—	HeavyfallofSnow	29.120	37	37	—	Fine	29.228	29	29	—	Clear & Frosty
W.	2	—.223	36	36	—	Fine	—.189	38	38	—	Sleet	—.344	27	27	—	Ditto
Th.	3	—.479	29	29	—	Frosty&Foggy	—.337	38	38	—	Ditto	—.167	39	39	—	Heavy Rain
☾ F.	4	28.994	42	42	—	Rain	—.180	38	38	—	Rain	—.499	35	35	—	Clear &Windy
S	5	29.696	36	35	1	Cloudy & Cold	—.837	40	35	5	Fine	—.659	32	32	—	Fine
S.	6	29.451	27	27	—	Fine	—.859	39	38	1	Overcast	—.596	33	33	—	Sleet
M.	7	—.550	47	47	—	Cloudy	—.617	54	53	1	Fine	—.823	50	50	—	Fine
T.	8	—.920	54	54	—	Ditto	—.936	55	55	—	Rain	—.936	55	55	—	Drizzly
W.	9	30.013	55	54	1	Fine	30.066	61	57	4	Fine	30.138	55	53	2	Fine
Th.	10	—.232	52	48	4	Ditto	—.230	61	50	11	Very Fine	—.250	45	45	—	Ditto
F.	11	—.261	45	45	—	Ditto	—.264	57	55	2	Ditto	—.287	49	49	—	Ditto
● S.	12	—.305	49	49	—	Ditto	—.303	56	52	4	Ditto	—.310	46	46	—	Ditto
S.	13	—.246	46	46	—	Slight Rain	—.244	50	50	—	Drizzly	—.216	45	45	—	Wet
M.	14	—.251	45	45	—	Hazy	—.253	59	56	3	Overcast	—.259	44	44	—	Overcast
T.	15	—.150	39	39	—	Foggy	—.040	48	44	4	Very Fine	29.946	42	42	—	Fine
W.	16	29.902	46	46	—	Fine	29.962	52	46	6	Ditto	—.986	38	38	—	Ditto
Th.	17	—.919	48	40	8	Showery	30.102	48	34	14	Ditto	30.212	40	40	—	Ditto
F.	18	30.233	39	39	—	Fine	—.221	48	45	3	Overcast	—.208	41	41	—	Overcast
☽ S.	19	29.988	43	43	—	Ditto	29.957	49	49	—	Cloudy	—.039	44	44	—	Cloudy
S.	20	—.993	40	40	—	Cloudy	—.997	42	30	12	Fine	—.022	36	30	6	Clear
M.	21	30.101	35	31	4	Fine but Cold	30.096	42	36	6	Cloudy & Cold	—.077	37	33	4	Ditto & Fine
T.	22	—.069	37	37	—	Drizzly	—.143	41	41	—	Drizzly	—.344	37	36	1	Ditto
W.	23	—.446	36	33	3	Fine	—.416	43	36	7	Fine	—.367	35	35	—	Ditto
Th.	24	—.197	42	42	—	Rain	—.153	49	49	—	Showery	—.045	44	44	—	Ditto
F.	25	29.849	44	44	—	Cloudy	29.850	46	40	6	Fine	29.714	41	41	—	Ditto
○ S.	26	—.208	46	46	—	Stormy & Wet	—.218	48	48	—	Showery	—.425	36	36	—	Very Fine
S.	27	—.369	40	40	—	Rain	—.232	52	48	4	Cloudy	—.419	42	42	—	Ditto
M.	28	—.567	39	39	—	Fine	—.640	48	32	16	Fine	—.753	35	35	—	Fine
		29.848	41.75	41.0	.75		29.873	47.82	43.92	3.89		29.901	40.42	39.96	.46	

FEBRUARY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	40	30	49	23	S	Brisk		On the 1st the snow continued to fall heavily, and before it began to melt on the 3d its average depth was about 8 inches. As a proof of the partial effect of sudden frosts, it may be remarked that on the 2d the Minimum Temperature in the Shade was 13° ; being 18° lower than was registered the same night at Gosport and Penzance. The general character of the month was wet but mild for the season. On the 10th the Thermometer was as high as 65° in the Shade. Brisk gales of wind accompanied with rain were frequent, alternating with some very fine days. Vegetation began to advance slowly but regularly.
2	39	—13	41	— 5	——	Ditto	.75	
3	43	29	46	26	E	Little	.35	
4	43	31	43	29	W	Strong	.05	
5	40	25	52	15	——	Brisk		
6	48	33	52	30	E	Little	.25	
7	55	47	64	44	SW	Brisk		
8	56	53	59	50	——	Ditto	.05	
9	62	39	72	37	——	Ditto		
10	+65	36	+80	29	——	Little		
11	59	47	74	15	——	Ditto	.02	
12	58	41	78	39	——	Ditto	.02	
13	49	41	54	34	S	Ditto	.01	
14	47	36	54	28	——	Ditto		
15	51	37	69	34	——	Ditto	.06	
16	55	39	68	35	W	Brisk	.05	
17	50	36	62	29	——	Strong	.01	
18	48	37	56	32	——	Little	.01	
19	50	37	54	34	NW	Brisk	.20	
20	44	31	62	24	NE	Ditto		
21	43	35	63	32	N	Ditto	.01	
22	40	32	44	26	E	Little	.02	
23	44	33	68	29	W	Ditto	.02	
24	50	41	54	38	S	Ditto	.01	
25	47	38	58	36	W	Brisk	.05	
26	55	32	68	28	——	Strong	.07	
27	55	34	62	29	——	Ditto	.26	
28	50	35	68	19	——	Ditto		
	49.5	35.64	59.42	29.6			2.27	

Mean Pressure from the 3 daily observations 29.874 inches.
—— Temperature ..... Ditto ..... 43°.33
—— Dew Point ..... Ditto ..... 41°.62
—— Degree of Dryness .... Ditto ..... 1°.70
—— Degree of Moisture .. Ditto ..... .934
—— Force of Vapour .... Ditto ..... 0.299 inch.
Least observed degree of Moisture ..... .574
Maximum Temperature in Shade ..... 65°
Minimum Temperature in ditto ..... 13°
Maximum Temperature in the Sun ..... 80°
Minimum of Terrestrial Radiation..... 5°
Mean Temperature of External Air ..... 42°.57

WINDS.

North.....	1 days	N. East.....	1 days
South.....	6 ..	S. East.....	0 ..
East.....	3 ..	S. West.....	6 ..
West.....	10 ..	N. West.....	1 ..

28 days.

Amount of Rain ..... 2.27 inch.

MARCH.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	29.906	35	33	2	Fine	29.902	46	35	11	Fine	29.977	39	39	—	Fine
W.	2	—.797	47	47	—	Wet	—.738	57	54	3	Cloudy	—.681	51	51	—	Wet
Th.	3	—.643	51	51	—	Ditto	—.667	55	55	—	Wet	—.697	51	51	—	Ditto
F.	4	—.773	49	49	—	Slight Fog	—.903	57	53	4	Very Fine	—.960	48	48	—	Overcast
S.	5	—.840	49	49	—	Overcast	—.734	51	51	—	Overcast	—.417	49	49	—	Rain
☽ S.	6	—.177	51	51	—	Rather Stormy	—.149	52	52	—	Rain	—.524	49	49	—	Windy & Cloudy
M.	7	—.708	47	47	—	Fine	—.967	53	42	11	Very Fine	—.883	36	36	—	Fine
T.	8	—.784	43	43	—	Small Rain	—.666	54	54	—	Overcast	—.511	49	49	—	Wet
W.	9	—.614	44	44	—	Fine	—.611	54	42	12	Fine	—.776	35	35	—	Foggy
Th.	10	—.948	36	36	—	Foggy	—.803	51	48	3	Clearing	30.007	45	45	—	Overcast
F.	11	—.741	49	49	—	Cold and Wet	—.623	52	52	—	Wet	29.843	43	43	—	Clearing
S.	12	—.953	44	43	1	Fine	—.829	51	51	—	Rain	—.430	50	50	—	Stormy & Wet
S.	13	—.676	45	45	—	Overcast	—.570	48	48	—	Stormy & Wet	—.535	44	44	—	Ditto
● M.	14	—.727	44	44	—	Fine	—.719	44	44	—	Showery	—.773	40	40	—	Fine
T.	15	—.812	43	43	—	Wet	—.732	51	51	—	Stormy & Wet	—.521	51	51	—	Stormy & Wet
W.	16	—.669	54	54	—	Cloudy	—.740	55	55	—	Small Rain	—.874	54	54	—	Fine
Th.	17	—.885	54	54	—	Ditto	—.887	58	52	6	Fine	30.063	46	45	1	Ditto
F.	18	30.198	46	42	4	Fine	30.214	53	38	15	Ditto	—.261	40	39	1	Ditto
S.	19	—.250	45	43	2	Ditto	—.222	53	42	11	Ditto	—.180	43	42	1	Ditto
☾ S.	20	—.138	45	44	1	Overcast	—.092	57	44	13	Ditto	—.091	48	48	—	Ditto
M.	21	—.113	50	48	2	Ditto	—.126	57	53	4	Overcast	—.195	47	47	—	Slight Rain
T.	22	—.285	45	42	3	Ditto & Cold	—.297	49	35	14	Cloudy & Cold	—.366	38	35	3	Fine but Cold
W.	23	—.390	41	33	8	Fine but Cold	—.328	43	32	11	Cold & Dry	—.232	33	31	2	Ditto
Th.	24	—.009	36	36	—	Sleet	29.886	39	39	—	Cold & Wet	29.785	36	36	—	Ditto
F.	25	29.685	41	39	2	Fine	—.622	46	41	5	Cold & Dry	—.545	43	43	—	Ditto
S.	26	—.369	44	44	—	Wet	—.443	59	59	—	Fine	—.698	50	50	—	Overcast
S.	27	—.934	54	54	—	Fine	—.949	60	47	13	Very Fine	30.015	46	46	—	Windy w[h] showers
○ M.	28	30.062	47	47	—	Ditto	30.064	60	46	14	Ditto	—.123	46	44	2	Fine
T.	29	—.200	42	39	3	Cold & Cloudy	—.219	44	44	—	Cloudy	—.289	40	38	2	Ditto
W.	30	—.324	41	35	6	Bleak & Cold	—.325	49	35	14	Fine	—.366	41	41	—	Ditto
Th.	31	—.440	43	40	3	Ditto	—.448	50	32	18	Ditto	—.515	39	39	—	Ditto
		29.904	45.32	44.12	1.19		29.886	51.87	46.0	5.87		29 907	44.19	43.8	.38	

MARCH.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	48	36	64	30	W	Brisk	.02	Up to the 16th, the weather was unusually wet for this month, rain having fallen every day during that period, with the exception of the 5th and 7th, and frequently accompanied with strong gales of wind, particularly on the 6th, 12th, 13th, and 15th. The latter part of the month was generally dry, with cold winds from the East and N. East, which were rather injurious to vegetation. The latter however was not previously too far advanced, and was consequently less susceptible of the check. The degree of moisture in this and the preceding month was above the average.
2	56	47	61	42	——	Ditto	.12	
3	55	41	55	37	——	Little	.22	
4	59	45	+81	40	——	Ditto	.06	
5	52	48	52	45	S	Ditto		
6	53	44	55	37	W	Brisk	.04	
7	55	—30	76	—19	S	Little		
8	52	38	60	34	——	Ditto	.12	
9	55	31	68	26	SW	Ditto	.02	
10	57	37	76	40	W	Brisk	.05	
11	52	35	64	29	SW	Ditto	.04	
12	53	36	64	35	——	Ditto	.04	
13	54	38	54	33	W	Strong	.25	
14	51	33	51	34	——	Ditto	.20	
15	54	46	54	45	SW	Ditto	.04	
16	60	52	68	49	W	Little	.02	
17	61	36	64	27	——	Strong		
18	54	32	60	23	——	Brisk		
19	54	35	65	28	——	Little		
20	56	45	62	42	SW	Ditto		
21	55	43	58	41	E	Ditto		
22	49	37	56	32	——	Brisk		
23	45	32	54	25	——	Ditto		
24	43	34	49	28	——	Ditto	.05	
25	45	40	52	38	——	Strong	.50	
26	60	42	67	34	S	Brisk	.12	
27	+65	33	75	26	W	Little		
28	62	39	71	26	E	Ditto		
29	46	37	50	32	NE	Brisk		
30	48	37	56	33	——	Ditto		
31	64	37	67	31	——	Ditto		
	53.96	38.58	61.58	33.58			1.91	

Mean Pressure from the 3 daily observations 29.899 inches.
—— Temperature ..... Ditto ..... 47°.12
—— Dew Point ..... Ditto ..... 44°.64
—— Degree of Dryness ... Ditto ..... 2°.48
—— Degree of Moisture .. Ditto ..... .917
—— Force of Vapour ..... Ditto ..... .335 inch.
Least observed degree of Moisture ..... .540
Maximum Temperature in the Shade .... 65°
Minimum Temperature in ditto ..... 30°
Maximum Temperature in the Sun ..... 81°
Minimum of Terrestrial Radiation ..... 19°
Mean Temperature of External Air ..... 46°.22

WINDS.

North.....0 days.	N. East.....3 days.
South .....4 ..	S. East.....0 ..
East .....6 ..	S. West .....5 ..
West.....13 ..	N. West.....0 ..

31 days.

Amount of Rain..... 1.91 inch.

APRIL.

	1831.	Days.	Morning. Barom.	Morning. Hygrometer.			Morning. Weather.	Noon. Barom.	Noon. Hygrometer.			Noon. Weather.	Night. Barom.	Night. Hygrometer.			Night. Weather.
	F.	1	30.470	45	36	9	Fine but Cold	30.329	46	34	12	Fine	30.233	37	37	—	Rain
	S.	2	—.108	43	43	—	Hazy	—.088	45	45	—	Cloudy	—.034	43	43	—	Fine
	S.	3	—.001	45	44	1	Fine	29.852	54	45	9	Overcast	29.846	38	38	—	Ditto
	M.	4	29.751	41	39	2	Overcast	—.672	55	46	9	Dull	—.584	37	37	—	Slight Fog
☾	T.	5	—.584	42	42	—	Fine, slight Frost	—.530	52	43	9	Ditto	—.502	46	44	2	Fine
	W.	6	—.531	48	46	2	Very Fine	—.534	57	42	15	Fine	—.481	43	43	—	Ditto
	Th.	7	—.397	52	50	2	Fine	—.322	62	49	13	Cloudy	—.300	52	52	—	Overcast
	F.	8	—.291	49	49	—	Heavy Rain	—.294	49	49	—	Rain	—.433	45	45	—	Wet
	S.	9	—.514	56	55	1	Cloudy	—.546	61	55	6	Fine	—.500	49	49	—	Heavy Rain
	S.	10	—.585	56	54	2	Fine	—.690	60	52	8	Ditto	—.857	45	45	—	Fine
	M.	11	—.980	50	49	1	Ditto	—.998	60	53	7	Overcast	30.019	49	49	—	Ditto
●	T.	12	—.936	55	54	1	Hazy	—.884	63	58	5	Fine	29.822	53	53	—	Cloudy with Lightning
	W.	13	—.834	59	59	—	Fine	—.801	64	57	7	Ditto	—.835	52	52	—	Fine
	Th.	14	—.979	50	48	2	Ditto	—.981	56	46	10	Ditto	30.004	49	47	2	Ditto
	F.	15	30.029	52	48	4	Ditto	30.000	56	53	3	Overcast	—.038	52	51	1	Overcast
	S.	16	—.070	58	54	4	Ditto	—.048	61	54	7	Cloudy	—.000	52	50	2	Do. and Fine
	S.	17	29.998	50	48	2	Hazy	29.996	56	49	7	Fine	—.058	44	41	3	Fine
	M.	18	30.074	46	43	3	Fine	30.025	56	43	13	Ditto	—.007	40	39	1	Very Clear
☽	T.	19	29.981	48	46	2	Overcast	29.912	58	53	5	Ditto	29.897	42	42	—	Ditto with Aurora Borealis.
	W.	20	29.837	48	43	5	Fine	—.784	58	49	9	Ditto	—.717	43	43	—	Clear
	Th.	21	—.559	49	48	1	Slight Haze	—.508	55	52	3	Overcast	—.494	51	50	1	Fine
	F.	22	—.403	56	54	2	Ditto	—.387	62	53	9	Fine	—.506	52	51	1	Do.& overcast
	S.	23	—.526	51	51	—	Ditto	—.504	61	61	—	Cloudy, Thund^{r}	—.705	51	42	9	Fine
	S.	24	—.844	56	50	6	Fine	—.863	57	49	8	Fine	—.931	48	48	—	Ditto
	M.	25	30.010	60	53	7	Ditto	30.000	64	48	6	Overcast	—.953	50	48	2	Ditto
	T.	26	29.820	59	52	7	Ditto	29.781	67	49	18	Fine	—.777	48	48	—	Ditto
○	W.	27	—.665	51	51	—	Slight Rain	—.562	63	54	9	Cloudy	—.465	52	51	1	Ditto
	Th.	28	—.354	55	55	—	Mild Showers	—.334	55	55	—	Ditto	—.306	50	50	—	Overcast
	F.	29	—.209	50	56	—	Rain	— 219	63	53	10	Do. and Fine	—.242	54	54	—	Damp
	S.	30	—.239	56	54	2	Fine	—.262	68	51	17	Cloudy	—.266	54	53	1	Cloudy
			29.749	51.2	48.93	2.26		29.723	57.8	50	7.8		29.727	47.36	46.5	.86	

APRIL.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	60	37	67	31	NE	Brisk	.05	In this month the weather was very favourable for the operations of the garden, and also for vegetation; the latter made considerable progress. The temperature was above the average mean. Thunder and lightning occurred on the 12th and 23d; and on the evening of the 19th an unusually splendid Aurora Borealis appeared.
2	59	36	65	33	——	Little	.46	
3	60	34	62	29	——	Ditto		
4	55	—31	65	—23	——	Ditto		
5	56	38	66	30	W	Ditto		
6	58	39	66	30	S	Ditto		
7	63	47	66	42	SE	Brisk	.20	
8	54	45	64	40	S	Little	.40	
9	61	46	69	42	——	Ditto	.25	
10	58	35	65	30	W	Ditto		
11	58	46	66	41	NE	Ditto		
12	66	44	74	41	E	Brisk	.15	
13	+69	47	+83	42	N	Little		
14	58	39	66	30	——	Ditto		
15	60	49	69	45	NW	Brisk		
16	61	47	67	44	NE	Little		
17	56	34	64	25	——	Ditto		
18	58	38	68	30	——	Brisk		
19	62	39	71	32	——	Ditto		
20	59	41	74	34	——	Little		
21	55	45	63	41	E	Ditto		
22	65	45	74	45	——	Ditto		
23	61	48	79	43	——	Ditto		
24	63	52	75	44	S	Ditto		
25	66	42	73	32	——	Ditto		
26	65	42	79	33	——	Ditto	.01	
27	63	47	74	44	——	Ditto	.04	
28	57	40	66	32	SE	Ditto	.10	
29	65	48	75	45	——	Brisk	.30	
30	67	45	74	39	S	Little		
	60.6	42.2	69.63	36.4			1.96	

Mean Pressure from the 3 daily observations 29.733 inches.
—— Temperature ..... Ditto ..... 52°.12
—— Dew Point ..... Ditto ..... 48°.47
—— Degree of Dryness ... Ditto 3.64
—— Degree of Moisture .. Ditto ..... .886
—— Force of Vapour. .... Ditto .... . .381 inch.
Least observed degree of Moisture ..... .555
Maximum Temperature in Shade ..... 69°
Minimum Temperature in ditto ..... 31°
Maximum Temperature in the Sun ..... 83°
Minimum of Terrestrial Radiation ..... 23°
Mean Temperature of External Air..... 51°.4

WINDS.

North.....	2 days.	N. East.....	10 days.
South.....	8 ..	S. East.....	3 ..
East.....	4 ..	S. West.....	0 ..
West.....	2 ..	N. West.....	1 ..

30 days.

Amount of Rain..... 1.96 inches.

MAY.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.452	57	56	1	Cloudy	29.473	63	63	—	Showers	29.534	47	47	—	Clear
M.	2	—.546	57	57	—	Slight Fog	—.585	56	56	—	Thunder and Heavy Rain	—.609	50	50	—	Wet
T.	3	—.653	58	58	—	Clearing	—.655	63	63	—	Showery	—.681	53	53	—	Fine
W.	4	—.597	62	62	—	Cloudy w^{h} Show^{rs}	—.593	62	62	—	Ditto	—.568	45	45	—	Clear
☾ Th.	5	—.544	49	46	3	Fine	—.506	52	52	—	Ditto	—.625	43	43	—	Do. & Cold
F.	6	—.784	45	36	9	Fine but Cold	—.825	48	35	13	Cloudy& cold	—.947	32	32	—	Frosty
S.	7	30.043	43	29	14	Clear & Frosty	30.272	50	31	19	Fine but cold	30.176	45	42	3	Overcast
S.	8	—.275	47	39	8	Fine but Cool	—.284	52	36	16	Cold & Bleak	—.357	38	36	2	Clear
M.	9	—.347	48	37	11	Ditto	—.301	56	38	18	Fine	—.255	45	40	5	Do. & Cold
T.	10	—.234	47	47	—	Cold & Hazy	—.191	57	47	10	Cold & Dry	—.214	42	39	3	Fine
W.	11	—.204	54	47	7	Fine	—.201	60	37	23	Very Dry	—.205	42	39	3	Clear
● Th.	12	—.137	53	51	2	Ditto	—.089	63	47	16	Fine	—.010	48	48	—	Fine
F.	13	29.970	55	50	5	Very Fine	29.947	64	45	19	Ditto	—.059	49	46	3	Cloudy
S.	14	30.090	47	32	15	Fine & very dry	30.097	55	32	23	Ditto	—.063	44	40	4	Fine
S.	15	—.074	50	41	9	Fine, Slight Frost	—.025	61	37	24	Ditto	—.036	49	46	3	Ditto
M.	16	—.139	56	45	11	Fine	—.163	65	46	19	Very Fine	—.201	52	49	3	Ditto
T.	17	—.212	63	51	12	Ditto	—.155	68	47	21	Fine very dry	—.118	55	52	3	Ditto
☽ W.	18	—.033	61	50	11	Ditto	29.962	67	45	22	Ditto	29.886	57	52	5	Ditto
Th.	19	29.974	58	46	12	Ditto	29.720	64	44	20	Ditto	—.775	55	55	—	Rain
F.	20	—.799	66	60	6	Ditto	—.836	65	65	—	Cloudy	—.642	58	58	—	Overcast
S.	21	—.916	58	58	—	Overcast	—.936	68	62	6	Ditto	—.993	58	58	—	Ditto
S.	22	30.004	57	56	1	Ditto	—.975	62	59	3	Dull	—.964	57	57	—	Fine
M.	23	—.000	59	57	2	Ditto	—.962	70	61	9	Fine	—.845	59	59	—	Overcast
T.	24	29.833	59	59	—	Hazy	—.831	72	68	4	Ditto	—.831	56	56	—	Fine
W.	25	—.847	65	63	2	Fine	—.840	72	67	5	Ditto	—.871	57	56	1	Ditto
○ Th.	26	—.843	59	57	2	Ditto	—.794	70	59	11	Ditto	—.779	56	55	1	Ditto
F.	27	—.788	53	52	1	Overcast	—.785	63	54	9	Ditto	—.825	53	52	1	Overcast
S.	28	—.925	56	52	4	Dull	—.962	69	50	19	Ditto	—.987	56	56	—	SlightlyDo.
S.	29	—.977	56	56	—	Slight Rain	—.954	58	58	—	Wet	—.785	55	55	—	Rain
M.	30	—.899	58	58	—	Cloudy	—.936	63	51	12	Fine	—.969	52	52	—	Clear
T.	31	—.985	56	56	—	Foggy	—.952	68	55	13	Ditto	—.897	49	49	—	Fine
		29.934	55.22	50.45	4.77		29.929	62.13	50.71	11.42		29.926	50.22	48.93	1.29	

MAY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	67	40	79	32	S	Little	.04	The cold in March being succeeded by the steady and seasonable weather experienced throughout the last month, no serious interruption to the progress of vegetation was expected at this advanced period: the reverse however took place; the first five days were rainy; on the 6th the Hygrometer indicated 13° of dryness; the atmosphere contained of course but little vapour for forming clouds, and the earth became exposed to the effects of radiation; the instrument exhibiting these, was, in the course of the night as low as 16°, while the Thermometer in the shade was 28°. Many sorts of plants suffered in consequence. Fruit trees were generally in full blossom, and the rudiments of the fruit, with few exceptions, were entirely destroyed.
2	61	47	66	44	E	Ditto	.72	
3	62	48	67	39	SW	Brisk	.12	
4	66	39	64	33	S	Little	.05	
5	66	38	75	32	——	Ditto	.12	
6	51	—28	67	—16	NW	Brisk		
7	55	33	77	21	E	Little		
8	51	35	75	24	——	Brisk		
9	59	39	88	32	——	Little		
10	56	38	80	32	NE	Brisk		
11	61	33	88	22	E	Ditto		
12	67	35	103	25	SE	Little		
13	66	40	96	36	NE	Ditto		
14	67	31	102	21	E	Ditto		
15	63	37	105	27	S	Ditto		
16	73	37	112	30	N	Ditto		
17	74	41	+117	38	E	Ditto		
18	70	52	98	44	——	Brisk		
19	68	53	96	49	——	Ditto	.40	
20	75	49	104	42	S	Little	.11	
21	69	51	90	50	E	Ditto		
22	69	50	80	44	N	Ditto		
23	77	54	101	53	——	Ditto		
24	+78	53	105	45	NW	Ditto		
25	75	47	99	39	NE	Ditto		
26	72	49	94	48	——	Ditto		
27	67	49	84	47	E	Ditto		
28	70	50	95	47	S	Ditto		
29	56	49	61	48	SE	Ditto	.65	
30	68	46	96	37	E	Ditto		
31	67	46	91	40	NE	Ditto		
	66	43.12	88.87	36.67			2.21	

Mean Pressure from the 3 daily observations	29.929 inches.
—— Temperature .....Ditto.....	55°.85
—— Dew Point .....Ditto.....	50°.03
—— Degree of Dryness ....Ditto.....	5°.82
—— Degree of Moisture ...Ditto.....	.818
—— Force of Vapour .....Ditto.....	.400 inch.
Least observed degree of Moisture	.443
Maximum Temperature in Shade	78°
Minimum Temperature in ditto.....	28°
Maximum Temperature in the Sun	117°
Minimum of Terrestrial Radiation	16°
Mean Temperature of External Air	54°.56

WINDS.

North.....	3 days.	N. East	5 days.
South.....	6 ..	S. East	2 .
East	12 ..	S. West	1 ..
West.....	0 ..	N. West	2 ..

31 days.

Amount of Rain ..... 2.21 inch.

JUNE.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	29.925	61	58	3	Fine	29.944	67	50	17	Fine	30.063	53	50	3	Fine
Th.	2	30.132	60	49	11	Very Fine	30.111	69	41	28	Do. & very dry	—.111	54	53	1	Ditto
☾ F.	3	—.163	61	56	5	Ditto	—.153	69	52	17	Fine	—.124	59	59	—	Ditto
S.	4	—.182	58	53	5	Ditto	—.180	68	56	12	Ditto	—.161	61	58	3	Overcast
S.	5	—.117	67	58	9	Ditto	—.094	71	58	13	Cloudy	—.037	54	54	—	Rain
M.	6	—.076	55	49	6	Ditto	—.087	60	48	12	Ditto	—.086	50	48	2	Cloudy&Cool
T.	7	—.074	53	46	7	Overcast	—.030	59	47	12	Ditto	29.902	53	52	1	Fine
W.	8	29.835	59	56	3	Fine	29.811	66	55	11	Fine	—.843	55	54	1	Ditto
Th.	9	—.861	63	58	5	Ditto	—.834	73	51	22	Ditto	—.793	58	58	—	Slight Rain
● F.	10	—.722	64	59	5	Fine with brisk wind	—.741	67	67	—	Heavy Showers	—.748	57	56	1	Overcast
S.	11	—.726	65	60	5	Fine	—.715	70	54	16	Fine	—.758	58	58	—	Wet
S.	12	—.772	64	63	1	Cloudy	—.822	69	58	11	Ditto	—.897	62	59	3	Slightly overcast
M.	13	—.886	64	64	—	Ditto	—.974	72	72	—	Showers	30.084	58	58	—	Fine
T.	14	30.148	70	62	8	Very Fine	30.138	72	55	17	Very Fine	—.056	58	54	4	Ditto
W.	15	29.873	69	62	7	Ditto	29.856	70	70	—	Rain	29.822	57	57	—	Clear
Th.	16	—.835	65	60	5	Ditto	—.815	72	53	19	Fine	—.836	59	58	1	Fine
☽ F.	17	—.923	65	56	9	Ditto	—.967	72	56	16	Ditto	—.985	58	58	—	Ditto
S.	18	—.996	65	63	2	Overcast	30.007	70	56	14	Overcast	—.974	56	56	—	Cloudy
S.	19	—.948	66	63	3	Cloudy	29.973	70	56	14	Ditto	30.052	60	58	2	Fine
M.	20	30.175	66	52	14	Very Fine	30.190	70	58	12	Very Fine	—.191	60	58	2	Ditto
T.	21	—.200	67	54	13	Ditto	—.162	75	54	21	Ditto	—.175	61	58	3	Ditto
W.	22					Ditto					Ditto					Very Fine
Th.	23	—.211	68	66	2	Very Hot	—.156	70	56	14	Ditto	—.114	66	64	2	Overcast
F.	24	29.930	58	58	—	Rain	29.928	69	49	20	Cloudy, Showers	29.859	56	52	4	Fine
○ S.	25	—.646	58	58	—	Overcast.	—.789	63	59	4	Cloudy	—.672	55	55	—	Cloudy&Cool
S.	26	—.646	58	58	—	Wet	—.649	56	56	—	Rain	—.828	54	54	—	Clear
M.	27	—.900	64	61	3	Fine	—.844	65	65	—	Slight Ditto	—.696	56	56	—	Heavyshowers
T.	28	—.920	57	57	—	Rain	—.960	63	59	4	Cloudy	30.000	56	55	1	Fine
W.	29	30.015	57	53	4	Cloudy	30.009	61	61	—	Rain	29.996	55	55	—	Rain
Th.	30	—.014	58	56	2	Ditto	—.011	66	60	6	Cloudy	30.073	60	57	3	Overcast
	*	29.960	62.24	57.51	4.72		29.964	67.72	56.27	11.44		29.963	57.2	55.93	1.27	

* No observations having been made on the 22nd, the means are deduced from 29 days only.

JUNE.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	74	—41	93	—32	NE	Little		The weather throughout this month was, on the whole, very favourable to vegetation, its general character being fine with frequent showers. The temperature was nearly 3° above the mean of June for many years. With the exception of a few days, the wind was in either a West, or South-west, direction the whole of the month. The injury caused to vegetation by the severe frost in May, which was still very evident at the end of that month, had almost disappeared in this, as far as related to the growth of plants; although the flowering and fruiting of many were past recovery for the season.
2	75	43	104	34	W	Ditto		
3	77	48	106	47	NW	Ditto		
4	76	48	105	42	N	Ditto		
5	75	50	92	46	W	Ditto	.10	
6	62	49	85	44	N	Brisk		
7	63	46	90	39	——	Ditto		
8	71	46	98	40	NW	Little		
9	76	54	96	51	SW	Ditto	.05	
10	72	55	95	51	——	Brisk	.07	
11	74	55	96	51	W	Ditto	.13	
12	74	55	+110	50	——	Little		
13	76	51	105	48	SW	Ditto	.06	
14	78	52	106	46	——	Ditto		
15	76	52	97	45	——	Ditto	.05	
16	74	52	91	45	——	Brisk		
17	73	54	89	48	——	Ditto	.02	
18	69	58	81	54	——	Ditto		
19	70	58	86	54	——	Ditto	.13	
20	68	45	92	40	——	Little		
21	76	50	97	45	——	Ditto		
22	78	56	98	46	——	Ditto		
23	+83	49	110	45	——	Ditto	.05	
24	72	52	90	40	W	Brisk		
25	64	51	76	47	——	Little	.22	
26	68	46	89	40	——	Brisk	.07	
27	71	53	90	46	SW	Little	.30	
28	63	53	73	48	N	Ditto		
29	64	52	75	47	W	Ditto	.12	
30	70	54	84	48	——	Ditto		
	72.06	50.93	93.3	45.3			1.37	

Mean Pressure from the 3 daily observations 29.962 inches.
—— Temperature ..... Ditto ..... 62°.38
—— Dew Point ..... Ditto ..... 56°.57
—— Degree of Dryness ... Ditto ..... 5°.81
—— Degree of Moisture .. Ditto ..... .833
—— Force of Vapour ..... Ditto ..... .501 inch.
Least observed degree of Moisture ..... .391
Maximum Temperature in Shade ..... 83°
Minimum Temperature in ditto ..... 41°
Maximum Temperature in the Sun .....110°
Minimum of Terrestrial Radiation ..... 32°
Mean Temperature of External Air ..... 61°.49

WINDS.

North .....4 days		N. East .....1 days	
South 0	..	S. East 0	..
East 0	..	S. West.....14	..
West 9	..	N. West..... 2	..

30 days.

Amount of Rain.....1.37 inch.

JULY.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	30.097	63	53	10	Fine	30.074	68	53	15	Fine	30.055	60	55	5	Fine
☾ S.	2	—.025	56	56	—	Ditto	29.996	71	50	21	Ditto	29.994	62	60	2	Ditto
S.	3	—.010	56	56	—	Overcast	30.022	73	60	13	Ditto	30.080	62	60	2	Ditto
M.	4	—.204	65	50	15	Very Fine	—.171	76	52	24	Very Fine	—.171	61	59	2	Ditto
T.	5	—.124	69	61	8	Ditto	—.210	74	64	10	Ditto	—.255	64	63	1	Ditto
W.	6	—.351	72	62	10	Ditto	—.337	70	50	20	Ditto	—.364	63	62	1	Ditto
Th.	7	—.331	66	59	7	Ditto	—.281	74	56	18	Ditto	—.266	61	59	2	Ditto
F.	8	—.240	66	62	4	Ditto	—.205	73	52	21	Ditto	—.190	62	60	2	Ditto
● S.	9	—.161	72	59	13	Very Hot	—.123	82	56	26	Very Hot	—.103	69	62	7	Ditto
S.	10	—.049	68	64	4	Overcast	—.011	67	67	—	Thunder	—.009	59	59	—	Cloudy
M.	11	29.885	69	63	6	Hot	29.822	73	55	18	Hot	29.729	63	60	3	Ditto
T.	12	—.658	67	67	—	Cloudy	—.646	73	73	—	Do.&showery	—.674	61	61	—	Ditto
W.	13	—.584	56	56	—	Heavy Rain	—.638	63	63	—	Cloudy	—.707	60	57	3	Fine
Th.	14	—.750	56	56	—	Ditto	—.735	69	62	7	Rain	—.721	56	56	—	Ditto
F.	15	—.735	68	68	—	Showers	—.770	66	66	—	Ditto	—.785	60	60	—	Overcast
D S.	16	—.745	68	68	—	Ditto	—.770	66	62	4	Cloudy	—.830	56	56	—	Thunder showers
S.	17	—.939	66	62	4	Fine	—.974	69	65	4	Fine	30.024	63	60	3	Fine
M.	18	—.994	65	61	4	Ditto	—.945	70	64	6	Ditto	29.913	60	60	—	Ditto
T.	19	—.895	65	57	8	Ditto	—.896	70	55	15	Ditto	—.873	61	58	3	Cloudy
W.	20	—.790	63	60	3	Cloudy	—.790	66	61	5	Overcast	—.750	62	60	2	Windy
Th.	21	—.636	69	65	4	Do. & Windy	—.648	69	62	7	Fine	—.706	57	55	2	Fine
F.	22	—.817	64	56	8	Fine	—.802	65	65	—	Slight Showers	—.815	55	55	—	Ditto
S.	23	—.825	64	59	5	Ditto	—.532	65	59	6	Overcast	—.739	56	56	—	Rain
○ S.	24	—.825	65	65	—	Cloudy	—.846	70	63	7	Do.slight rain	—.956	57	57	—	Fine
M.	25	30.045	62	58	4	Very Fine	30.056	72	61	11	Dull	30.129	56	56	—	Ditto
T.	26	—.159	65	57	8	Ditto	—.144	78	63	15	Hot	—.197	62	62	—	Ditto
W.	27	—.112	69	65	4	Ditto	—.190	78	60	18	Ditto	—.178	65	63	2	Ditto
Th.	28	—.143	72	67	5	Ditto	—.198	82	65	17	Very Hot	—.081	71	71	—	Wet
F.	29	—.098	71	67	4	Hot	—.083	81	63	18	Ditto	—.138	63	63	—	Overcast
S.	30	—.158	71	65	6	Ditto	—.139	80	68	12	Ditto	—.121	64	64	—	Fine
S	31	—.097	70	64	6	Ditto	—.028	79	66	13	Ditto	—.019	69	68	1	Ditto
		29.983	65.74	60.9	4.83		29.970	72	60.67	11.32		29.986	61.28	59.9	1.38	

JULY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	73	—47	103	—40	NW	Little		The mean temperature of this month was above the average; and fully the usual quantity of rain fell. Heavy thunder showers were frequent; on the 10th in particular there was a great storm in the forenoon, and much rain fell to the eastward. The hottest day in the season was the 9th, the Thermometer being at 86° in the shade, although situated so as to be unaffected by the radiation of heat from buildings, &c.
2	78	55	106	51	W	Ditto		
3	78	51	101	46	——	Ditto	.01	
4	80	51	101	47	——	Ditto		
5	80	53	100	48	——	Ditto	.03	
6	83	53	104	48	E	Ditto		
7	78	50	108	43	——	Ditto		
8	79	49	107	42	——	Ditto		
9	+86	57	115	52	SW	Ditto		
10	73	50	97	44	E	Ditto	.01	
11	79	58	110	55	W	Ditto	.01	
12	76	54	96	54	SW	Ditto	1.10	
13	74	51	94	46	W	Ditto	.08	
14	74	53	94	53	——	Ditto	.60	
15	75	54	94	53	SW	Ditto	.18	
16	73	54	102	49	W	Ditto	.11	
17	79	53	103	48	——	Ditto		
18	73	53	88	48	SW	Brisk		
19	73	57	90	53	——	Little		
20	70	60	79	53	——	Brisk	.03	
21	73	50	90	45	——	Ditto		
22	70	47	86	40	——	Ditto	.10	
23	68	54	77	53	——	Little	.14	
24	70	49	92	42	E	Ditto		
25	73	49	100	43	NE	Ditto		
26	80	51	110	45	E	Ditto		
27	85	55	115	50	W	Ditto		
28	85	56	+117	52	NW	Ditto	.04	
29	85	54	111	49	SW	Ditto		
30	83	54	106	48	E	Ditto	.08	
31	82	52	105	45	——	Ditto		
	77	52.71	100	47.96			2.52	

Mean Pressure from the 3 daily observations	29.979	inches.
—— Temperature .....Ditto.....	66°.34	
—— Dew Point .....Ditto.....	60°.50	
—— Degree of Dryness ....Ditto.....	5°.84	
—— Degree of Moisture....Ditto.....	.829	
—— Force of Vapour.....Ditto.....	.568	inch.
Least observed degree of Moisture.....	.436	
Maximum Temperature in Shade.....	86°	
Minimum Temperature in ditto.....	47°	
Maximum Temperature in the Sun	117°	
Minimum of Terrestrial Radiation	40°	
Mean Temperature of External Air.....	64°.85	

WINDS.

North.....1	days.	N. East 1	days.
South 0	..	S.East.....0	..
East 8	..	S. West ...10	..
West 9	..	N. West....2	..

31 days.

Amount of Rain ..... 2.52 inches.

AUGUST.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
☾ M.	1	30.034	70	60	10	Fine	30.001	76	64	12	Fine	29.938	64	64	—	Wet [showers
T.	2	29.854	65	65	—	Rain	29.858	66	66	—	Rain	—.879	63	63	—	Heavy Thunder
W.	3	—.872	66	66	—	Ditto	—.860	70	70	—	Heavy showers	—.865	61	61	—	Clearing
Th.	4	—.782	68	68	—	Overcast	—.658	79	72	7	Cloudy	—.656	65	65	—	Overcast, lightning
F.	5	—.654	68	68	—	Ditto	—.660	74	69	5	Ditto	—.668	65	65	—	Thund^{r} showers
S.	6	—.721	68	62	6	Very Fine	—.708	73	64	9	Fine	—.695	62	61	1	Fine
● S.	7	—.642	70	66	4	Ditto	—.676	72	63	9	Ditto	—.729	63	63	—	Ditto
M.	8	—.830	65	63	2	Overcast	—.839	77	67	10	Ditto	—.927	65	64	1	Ditto
T.	9	—.935	72	67	5	Fine	—.899	78	68	10	Ditto	—.873	64	64	—	Rain
W.	10	30.024	65	65	—	Ditto	30.061	73	65	8	Ditto	30.130	58	58	—	Fine
Th.	11	—.150	68	63	5	Ditto	—.127	76	59	17	Ditto	—.131	63	62	1	Ditto
F.	12	—.138	69	65	4	Ditto	—.093	77	66	11	Ditto	—.074	62	62	—	Ditto
S.	13	—.050	68	65	3	Ditto	—.050	68	65	3	Ditto	29.994	64	62	2	Overcast
S.	14	—.002	67	62	5	Ditto	29.989	73	58	15	Ditto	30.037	58	58	—	Fine
☽ M.	15	—.081	64	61	3	Ditto	30.094	72	58	14	Ditto	—.106	60	59	1	Ditto
T.	16	—.125	61	61	—	Slight Fog	—.100	75	69	6	Sultry	—.088	62	60	2	Cloudy, lightning
W.	17	—.052	63	63	—	Showers	—.019	71	71	—	Fine, with showers	29.960	55	55	—	Thund^{r} Storm
Th.	18	29.946	58	55	3	Fine	29.959	65	45	20	Fine	—.934	56	53	3	Slightly Overcast
F.	19	—.677	69	69	—	Cloudy, brisk wind	—.697	66	54	12	Ditto	—.698	58	58	—	Slight Rain
S.	20	—.668	60	57	3	Windy	—.778	67	55	12	Ditto	—.936	57	57	—	Wet
S.	21	30.087	60	60	—	Do. wth showers	30.148	68	64	4	Cloudy	30.258	59	57	2	Clear
M.	22	—.293	60	58	2	Cloudy	—.272	69	58	11	Fine	—.225	61	60	1	Overcast & Fine
○ T.	23	—.175	69	63	6	Fine	—.125	75	59	16	Ditto	—.004	65	64	1	Very Fine
W.	24	29.949	69	64	5	Ditto	29.860	74	64	10	Overcast	29.785	62	62	—	Overcast
Th.	25	—.722	62	56	6	Ditto	—.812	67	43	24	Fine	—.881	59	54	5	Very Fine
F.	26	—.958	65	59	6	Ditto	—.938	74	62	12	Cloudy but Fine	—.936	60	60	—	Fine
S.	27	—.949	70	67	3	Ditto	—.932	77	69	8	Ditto	—.935	67	67	—	Overcast
S.	28	30.105	64	58	6	Ditto	30.124	70	45	25	Very Fine	30.175	57	57	—	Fine
M.	29	—.214	62	60	2	Ditto	—.191	72	59	13	Ditto	—.175	63	60	3	Cloudy
☾ T.	30	—.124	67	67	—	Ditto	—.095	74	67	7	Cloudy	—.012	65	65	—	Do. & Windy
W.	31	29.937	68	65	3	Cloudy	29.984	64	64	—	Wet	29 977	51	51	—	Fine
		29.959	65.8	62.8	3.		29.955	72	62	10		29.954	61.1	60.35	.74	

AUGUST.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	77	61	107	60	E	Little	.03	The quantity of rain which fell in this month was moderate, and, on the whole, the weather was favourable for the operations of this period of the season. On the afternoon of the 17th there was a very heavy thunder storm, with rain in torrents, and also hail in some places, which however did but little damage, owing to its being so nearly melted before reaching the ground. The temperature continued high throughout the month, being about 4° above the average.
2	75	60	99	57	NE	Ditto	.43	
3	78	65	101	55	E	Ditto	.05	
4	81	61	+109	60	S	Ditto	.01	
5	82	57	106	53	W	Ditto	.03	
6	78	56	97	51	S	Ditto		
7	82	55	107	51	——	Ditto		
8	83	57	108	54	N	Ditto		
9	+84	58	106	54	W	Ditto	.21	
10	75	50	106	42	——	Ditto		
11	78	50	104	44	E	Ditto		
12	81	51	105	46	W	Ditto		
13	80	51	101	47	——	Ditto		
14	76	47	105	41	——	Ditto		
15	77	51	104	45	E	Ditto		
16	75	55	97	50	SW	Ditto	.03	
17	79	52	104	46	N	Ditto	.54	
18	72	53	98	47	——	Brisk	.06	
19	70	54	85	50	NW	Ditto	.03	
20	72	57	88	55	W	Ditto	.14	
21	70	52	88	46	N	Ditto		
22	72	54	96	48	NE	Little		
23	81	49	107	45	W	Ditto		
24	73	56	93	55	S	Ditto	.01	
25	75	—45	94	—39	W	Brisk		
26	74	57	89	54	S	Little		
27	78	51	90	46	——	Ditto		
28	74	51	90	46	W	Brisk		
29	77	56	95	53	SW	Little		
30	75	62	95	59	——	Brisk		
31	71	46	87	41	N W	Little	.02	
	76.61	54.19	98.74	49.67			1.59	

Mean Pressure from the 3 daily observations 29.956 inches.
—— Temperature ..... Ditto ..... 66°.3
—— Dew Point ..... Ditto ..... 61°.71
—— Degree of Dryness ... Ditto ..... 4°.58
—— Degree of Moisture ... Ditto ..... .861
—— Force of Vapour ..... Ditto ..... .589 inch.
Least observed degree of Moisture ..... .441
Maximum Temperature in Shade ..... 84°
Minimum Temperature in ditto ..... 45°
Maximum Temperature in the Sun .....109°
Minimum of Terrestrial Radiation ..... 39°
Mean Temperature of External Air ..... 65°.4

WINDS.

North	4 days.	N. East	2 days.
South	6 ..	S. East	0 ..
East	4 ..	S. West	3 ..
West	10 ..	N. West	2 ..

31 days.

Amount of Rain.....1.59 inches.

SEPTEMBER.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	29.949	57	57	—	Rain	29.878	51	51	—	Rain	29.841	48	48	—	Heavy Rain
F.	2	—.848	54	54	—	Fine	—.891	55	55	—	Showers	—.934	47	47	—	Clear
S.	3	—.925	56	52	4	Ditto	—.909	62	50	12	Fine	—.872	49	49	—	Ditto
S.	4	—.855	55	53	—	Very Fine	—.732	68	61	7	Do. wth Clouds	—.843	61	61	—	Overcast
M.	5	—.900	61	61	—	Rain	—.917	75	68	7	Dull	—.923	63	63	—	Ditto
● T.	6	—.907	62	62	—	Ditto	—.892	66	66	—	Rain	—.878	53	53	—	Clear
W.	7	—.862	59	55	4	Fine	—.811	59	59	—	Heavy Rain	—.646	48	48	—	Ditto
Th.	8	—.707	57	57	—	Ditto	—.637	65	57	8	Fine	—.664	51	51	—	Fine
F.	9	—.582	54	54	—	Rain	—.613	58	58	—	Rain	—.745	52	52	—	Clearing
S.	10	—.796	58	58	—	Cloudy	—.762	63	59	4	Fine	—.947	50	50	—	Clear
S.	11	—.977	53	53	—	Overcast	30.049	62	57	5	Overcast	30.100	57	57	—	Overcast
M.	12	30.196	60	60	—	Ditto	—.212	63	60	3	Ditto	—.228	57	57	—	Ditto
T.	13	—.219	58	58	—	Slight Fog	—.186	67	57	10	Fine	—.161	57	57	—	Ditto
◗ W.	14	—.141	58	58	—	Ditto	—.129	63	52	11	Ditto	—.137	52	52	—	Clear
Th.	15	—.170	54	54	—	Foggy	—.145	65	58	7	Ditto	—.169	54	54	—	Overcast
F.	16	—.250	55	55	—	Ditto	—.262	63	54	9	Ditto	—.270	51	51	—	Fine
S.	17	—.242	57	57	—	Fine	—.210	61	57	4	Cloudy	—.192	52	52	—	Ditto
S.	18	—.120	59	59	—	Slight haze	—.073	67	58	9	Fine	—.003	56	56	—	Ditto
M.	19	29.915	55	55	—	Fine	29.882	67	56	11	Cloudy	29.829	53	53	—	Clearing
T.	20	—.858	51	50	1	Ditto	—.849	64	54	10	Fine	—.862	52	52	—	Fine
○ W.	21	—.803	60	60	—	Rain	—.823	64	56	8	Ditto	—.862	53	53	—	Ditto
Th.	22	—.932	54	54	—	Foggy	—.944	65	57	8	Very Fine	30.018	48	48	—	Ditto
F.	23	30.150	55	55	—	Fine	30 124	65	59	6	Fine	—.182	58	58	—	Ditto
S.	24	—.230	67	60	7	Ditto	—.193	68	63	5	Ditto	—.147	55	55	—	Clear
S.	25	—.037	60	60	—	Cloudy	29.974	68	59	9	Ditto	29.991	59	58	1	Fine
M.	26	—.023	61	61	—	Rain	30.005	66	66	—	Drizzly	—.970	58	58	—	Foggy
T.	27	29.908	58	58	—	Hazy&Drizzly	29.859	69	65	4	Fine	—.809	58	58	—	Overcast
☾ W.	28	—.757	61	61	—	Slight Fog	—.708	71	65	6	Ditto	—.772	59	59	—	Rain with Thunder
Th.	29	—.615	61	61	—	Cloudy& warm	—.602	70	66	4	Ditto	—.611	60	60	—	Overcast
F.	30	—.528	60	60	—	Hazy	—.426	72	72	—	Cloudy&warm	—.300	60	60	—	Rain & Thunder
		29.946	57.66	57.14	.53		29.923	64.73	59.16	5.56		29.926	54.36	54.33	.03	

SEPTEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	58	46	74	43	NW	Little	1.50	The quantity of rain on the 1st was nearly equal to that which fell in the whole of the preceding month, being an inch and a half. Rains were frequent till the 10th, from which time the weather became dry till the last week, which was rather wet. The Hygrometer indicated no dryness in the air at nights, except on the 25th; and the mornings were generally hazy. The Radiating Thermometer began to approach at times the freezing point, and on the night of the 22d it was below it.
2	66	44	90	37	N	Ditto	.05	
3	68	38	93	34	NW	Brisk		
4	71	61	90	58	SW	Little	.08	
5	+76	58	89	54	S	Ditto	.05	
6	71	47	85	41	SW	Ditto	.11	
7	68	41	81	34	——	Ditto	.32	
8	68	47	81	44	——	Brisk	.10	
9	60	51	76	47	NW	Little	.30	
10	68	45	89	41	——	Brisk	.04	
11	64	52	79	52	N	Little		Mean Pressure from the 3 daily observations 29.931 inches
12	66	49	78	43	——	Ditto		—— Temperature ..... Ditto ..... 58°.91
13	69	53	85	51	E	Ditto		—— Dew Point ..... Ditto ..... 56°.87
14	67	43	85	37	——	Ditto		—— Degree of Dryness .... Ditto ..... 2°.04
15	69	47	95	41	W	Ditto		—— Degree of Moisture .. Ditto ..... .935
16	65	49	87	43	E	Ditto		—— Force of Vapour ..... Ditto ..... .505 inch.
17	65	47	88	41	N	Ditto		Least observed degree of Moisture ..... .673
18	70	43	90	38	SW	Ditto		Maximum Temperature in Shade ..... 76°
19	69	41	84	36	S	Brisk	.03	Minimum Temperature in ditto ..... 37°
20	66	55	87	50	W	Little		Maximum Temperature in the Sun ..... 99°
21	69	45	85	39	S	Ditto	.26	Minimum of Terrestrial Radiation ..... 31°
22	70	—37	92	—31	SW	Ditto		Mean Temperature of External Air ..... 58°.68
23	70	53	82	47	S	Brisk		
24	71	51	94	45	——	Ditto		WINDS.
25	59	55	93	51	——	Little	.07	North .....4 days | N. East ....1 days.
26	65	49	72	45	NE	Ditto	.02	South.....10 .. | S. East.....0 ..
27	73	53	97	48	S	Ditto	.23	East.....3 .. | S. West ....6 ..
28	75	57	+99	48	——	Ditto	.45	West ..... 2 .. | N. West ...4 ..
29	74	52	95	49	——	Ditto		30 days.
30	73	59	94	57	——	Ditto	.58	Amount of Rain..... 4.19 inches.
	68.43	48.93	86.96	44.16			4.19	

OCTOBER.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.295	65	65	—	Cloudy & Warm	29.269	71	65	6	Fine	29.246	61	61	—	Heavy Rain
S.	2	—.331	63	62	1	Cloudy	—.416	66	66	—	Cloudy	—.527	55	55	—	Fine
M.	3	—.707	57	57	—	Fine	—.763	67	61	6	Fine	—.763	59	59	—	Rain
T.	4	—.809	57	57	—	Ditto	—.895	63	55	8	Ditto	—.880	52	52	—	Fine
● W.	5	—.907	57	57	—	Damp	—.956	62	53	9	Ditto	30.038	50	50	—	Clear
Th.	6	—.928	63	63	—	Overcast	—.921	67	67	—	Ditto	29.914	59	59	—	Ditto
F.	7	—.633	65	65	—	Fine	—.671	69	65	4	Ditto	—.718	62	60	2	Cloudy
S.	8	—.708	60	60	—	Overcast	—.633	55	55	—	Heavy rain & thund^{r}	—.682	52	52	—	Foggy
S.	9	—.680	53	53	—	Ditto	—.702	59	59	—	Fine	—.666	55	54	1	Overcast
M.	10	—.662	58	58	—	Fine	—.647	61	60	1	Dull	—.545	59	59	—	Ditto
T.	11	—.710	60	60	—	Overcast	—.734	62	62	—	Drizzly	—.718	56	56	—	Slight Rain
W.	12	—.734	59	59	—	Rain	—.716	64	64	—	Rain	—.682	56	56	—	Heavy Rain
D Th.	13	—.684	60	60	—	Ditto	—.659	64	64	—	Ditto	—.575	65	63	2	Cloudy & windy
F.	14	—.785	57	57	—	Fine	—.620	64	64	—	Showers	—.696	59	59	—	Overcast
S.	15	—.594	61	61	—	Stormy & Wet	—.835	64	59	5	Fine	30.000	50	50	—	Clear
S.	16	30.178	50	50	—	Fine	30.128	61	52	9	Ditto	—.314	47	47	—	Fine
M.	17	—.371	54	54	—	Ditto	—.385	62	60	2	Ditto	—.423	55	55	—	Ditto
T.	18	—.418	57	57	—	Foggy	—.396	64	62	2	Foggy	—.395	65	63	2	Hazy
W.	19	—.264	55	55	—	Very Fine	—.236	65	62	3	Very Fine	30.074	50	50	—	Very Clear
Th.	20	—.002	58	58	—	Dull	29.985	63	60	3	Overcast	29.941	56	55	1	Fine
⊙ F.	21	29.937	55	55	—	Rain	—.938	60	55	5	Fine	30.035	46	46	—	Clear
S.	22	30.063	50	50	—	Overcast	30.002	58	58	—	Rain	29.916	58	58	—	Stormy & Wet
S.	23	29.949	58	58	—	Cloudy	29.825	62	62	—	Ditto	—.933	53	53	—	Clear
M.	24	30.099	50	50	—	Clear	30.080	59	55	4	Cloudy	30.057	54	53	1	Overcast
T.	25	29.899	56	53	3	Overcast	29.797	57	57	—	Rain	29.595	51	51	—	Clear & Fine
W.	26	—.535	56	56	—	Slight Showers	—.546	57	57	—	Ditto	—.641	54	54	—	Rain & thick Fog
Th.	27	—.739	51	51	—	Rain	—.702	56	56	—	Ditto	—.692	52	52	—	Heavy Rain
☾ F.	28	30.099	53	53	—	Clear and Fine	30.175	59	53	6	Very Fine	30.240	55	55	—	Fine
S.	29	—.315	47	47	—	Slight Fog	—.288	56	56	—	Fine	—.305	55	55	—	Rather Foggy
S.	30	—.309	40	40	—	Ditto	—.252	54	49	5	Ditto	—.220	49	49	—	Slight Shower
M.	31	—.211	52	50	2	Fine	—.191	57	53	4	Cloudy	—.187	52	51	1	Fine
		29.889	56.03	55.83	.2		29 882	61.55	58.9	2.65		29.890	54.9	54.58	.32	

OCTOBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	72	55	80	50	S	Little	.03	This month was mild for the season, but very wet; a state of the weather which was no doubt occasioned by the wind being either in a South, or South-west, direction during the whole of the month, with the exception of only four days. The temperature as well as the quantity of rain was considerably above the average. On the 12th alone an inch of rain fell; and upwards of half an inch on the 8th, on the forenoon of which it was very heavy, accompanied with thunder. Fogs were prevalent in the latter part of the month.
2	70	47	+86	42	——	Ditto	.01	
3	70	54	86	52	SW	Ditto	.30	
4	67	52	83	48	S	Brisk	.08	
5	68	50	76	45	SW	Little		
6	68	58	77	53	S	Ditto	.06	
7	+73	51	84	45	——	Brisk		
8	58	45	59	41	E	Little	.63	
9	65	50	81	45	S	Ditto	.10	
10	62	56	65	53	——	Ditto		
11	62	54	64	52	——	Ditto	.22	
12	66	49	72	45	——	Ditto	1.00	
13	68	61	72	58	——	Ditto	.06	
14	65	55	71	50	——	Ditto	.05	
15	65	41	70	36	——	Ditto	.02	
16	67	43	81	38	——	Ditto		
17	65	49	76	45	SW	Ditto		
18	64	53	68	49	S	Ditto		
19	61	45	67	39	SE	Ditto		
20	63	53	73	47	S	Ditto	.10	
21	60	37	63	32	SW	Ditto		
22	61	51	71	50	S	Brisk	.15	
23	62	46	69	40	W	Ditto	.11	
24	61	53	70	50	——	Ditto		
25	62	51	71	42	S	Ditto	.17	
26	61	50	63	46	——	Ditto	.52	
27	61	46	69	41	——	Little	.16	
28	62	39	71	33	SW	Brisk	.04	
29	61	—31	72	—26	——	Ditto		
30	60	41	66	40	——	Ditto		
31	60	48	69	42	——	Brisk		
	642	48.83	72.41	44.35			3.81	

Mean Pressure from the 3 daily observations 29.887 inches.
—— Temperature.....Ditto..... 57°.49
—— Dew Point.....Ditto..... 56°.43
—— Degree of Dryness....Ditto..... 1°.06
—— Degree of Moisture....Ditto..... .965
—— Force of Vapour.....Ditto..... .498 inch.
Least observed degree of Moisture..... .741
Maximum Temperature in the Shade.... 73°
Minimum Temperature in ditto..... 31°
Maximum Temperature in the Sun..... 86°
Minimum of Terrestrial Radiation..... 26°
Mean Temperature of External Air..... 56°.52

Winds.

North	0 days.	N. East.....	0 days.
South 19	..	S. East.....	1 ..
East.....	1 ..	S. West.....	8 ..
West.....	2 ..	N. West	0 ..

31 days.

Amount of Rain ..... 3.81 inch.

NOVEMBER.

		Morning.					Noon.					Night.				
1831.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	30.049	54	53	1	Overcast	29.981	56	54	2	Cloudy	29.879	55	55	—	Rain
W.	2	29.771	52	52	—	Cloudy	—.759	52	50	2	Ditto	—.700	44	41	3	Clear
Th.	3	—.502	45	45	—	Fine	—.443	46	46	—	Rain	—.613	35	35	—	Ditto
● F.	4	—.785	40	40	—	Clear	—.866	48	39	9	Fine	—.866	31	31	—	Fine
S.	5	—.551	47	47	—	Slight Rain	—.457	53	53	—	Cloudy	—.696	41	41	—	Clear
S.	6	—.622	42	42	—	Foggy	—.452	50	50	—	Rain	—.287	57	57	—	Rain
M.	7	—.492	45	43	2	Clear&Windy	—.548	47	47	—	Showers	—.607	45	45	—	Clear & Windy
T.	8	—.684	46	46	—	Ditto	—.776	50	48	2	Fine	—.935	42	42	—	Fine
W.	9	30.193	36	36	—	Frosty	30.227	47	47	—	Clear	30.404	32	32	—	Foggy
Th.	10	—.462	32	32	—	Do. & Foggy	—.398	41	41	—	Foggy	—.303	45	45	—	Rain
F.	11	—.274	50	50	—	Hazy	—.276	55	55	—	Cloudy	—.308	52	51	1	Overcast
☽ S.	12	—.352	54	53	1	Cloudy	—.362	55	55	—	Ditto	—.275	51	51	—	Ditto
S.	13	—.013	49	49	—	Showers	—.003	51	42	9	Fine	—.075	32	32	—	Clear & Frosty
M.	14	—.088	33	33	—	Frosty	29.927	44	39	5	Cloudy & Cold	29.551	40	40	—	Stormy & Wet
T.	15	29.523	34	34	—	Overcast	—.420	41	41	—	Showery	—.350	32	32	—	Clear
W.	16	—.352	34	33	1	Clear	—.426	41	33	8	Windy & Cold	—.546	34	34	—	Sleet
Th.	17	—.634	29	29	—	Frosty Fog	—.614	34	34	—	Dense Fog	—.612	32	32	—	Dense Fog
F.	18	—.746	30	30	—	Overcast	—.788	36	36	—	Fine	—.867	29	29	—	Frosty
○ S.	19	—.480	40	40	—	Clear	—.515	46	39	7	Ditto	—.727	40	39	1	Clear
S.	20	—.860	36	34	2	Slightly overcast	—.898	42	37	5	Ditto	—.939	40	40	—	Rain
M.	21	—.711	54	54	—	Rain	—.778	57	56	1	Cloudy	—.881	54	54	—	Cloudy & Windy
T.	22	—.860	55	55	—	Ditto	—.899	58	58	—	Hazy & drizzly	29.977	56	56	—	Hazy with Rain
W.	23	—.981	55	55	—	Overcast	30.178	58	55	3	Cloudy	—.014	55	55	—	Do. & slight rain
Th.	24	30.134	50	50	—	Fine	—.014	56	53	3	Very Fine	—.023	48	48	—	Clear
F.	25	29.962	50	50	—	Ditto	29.918	55	55	—	Cloudy	29.885	54	54	—	Rain
☾ S.	26	—.950	54	54	—	Hazy	30.029	49	49	—	Hazy & raw	30.200	41	41	—	Overcast
S.	27	30.338	34	34	—	Slight Frost	—.365	41	41	—	Slight Haze	—.454	33	33	—	Fine
M.	28	—.534	29	29	—	Frosty	—.524	39	39	—	Overcast	—.559	31	31	—	Frosty
T.	29	—.578	34	34	—	Slight Fog	—.577	36	36	—	Cold&damp	—.536	31	31	—	Foggy
W.	30	—.373	36	36	—	Overcast	—.275	42	42	—	Rain	—.174	45	45	—	Rain
		29.928	42.6	42.4	.2		29.923	47.53	45.67	1.86		29.942	41.9	41.7	.16	

NOVEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	57	51	60	48	S	Brisk	.14	This month maintained its general character, that of being damp and foggy; occasionally it was windy, particularly on the 7th, 16th, and 21st; the 14th was stormy and wet at night. The quantity of rain is below the average, yet there was a great degree of moisture in the atmosphere. The Barometer was unsteady; and at the end of the month it stood very high, the weather at the same time being hazy and frosty. The mean Temperature was rather above the average.
2	53	48	58	44	SW	Ditto		
3	48	32	61	26	——	Ditto	.04	
4	50	30	64	23	——	Little		
5	54	36	61	30	——	Ditto		
6	+58	40	61	35	S	Ditto	.09	
7	55	43	59	37	SW	Strong	.02	
8	52	30	61	24	——	Brisk		
9	50	29	+67	22	NW	Little		
10	56	38	66	39	SW	Ditto	.18	
11	55	50	58	46	W	Ditto		Mean Pressure from the 3 daily observations 29.931 inches.
12	55	48	57	43	——	Ditto		—— Temperature.....Ditto..... 44°.01
13	50	30	62	20	NW	Brisk	.01	—— Dew Point.....Ditto..... 43°.25
14	45	32	57	25	SW	Ditto	.08	—— Degree of Dryness.....Ditto..... .74
15	40	31	51	26	——	Little	.01	—— Degree of Moisture.....Ditto..... .972
16	41	—25	51	18	NW	Strong	.34	—— Force of Vapour.....Ditto..... .319 inch.
17	36	27	45	24	NE	Little		Least observed degree of Moisture..... .734
18	45	27	55	16	W	Ditto	.25	Maximum Temperature in Shade ..... 58°
19	45	31	51	23	——	Brisk	.01	Minimum Temperature in ditto..... 25°
20	55	35	57	32	——	Little	.04	Maximum Temperature in the Sun..... 67°
21	57	52	58	49	——	Strong	.35	Minimum of Terrestrial Radiation..... 15°
22	56	49	59	49	SW	Little	.02	Mean Temperature of External Air..... 43°.05
23	57	46	58	40	——	Ditto		
24	57	44	66	39	——	Ditto		**Winds.**
25	54	49	56	43	S	Ditto	.01	North.....0 days | N. East.....1 days
26	51	32	52	22	E	Ditto	.01	South ..... 3 .. | S. East.....1 ..
27	41	26	52	—15	——	Ditto		East .....2 .. | S. West.....12 ..
28	38	30	43	25	W	Ditto		West .....8 . | N. West.....3 ..
29	40	27	46	24	SE	Ditto		30 days.
30	46	40	51	40	W	Ditto	.10	Amount of Rain.....1.70 inch.
	49.9	37.93	55.76	31.56			1.70	

DECEMBER.

1831.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
Th.	1	30.186	45	45	—	Hazy	30.176	47	47	—	Foggy	30.126	45	45	—	Clearing
F.	2	—.060	44	44	—	Overcast	—.068	47	47	—	Overcast	—.110	45	45	—	Foggy
S.	3	—.174	44	44	—	Hazy	—.160	48	46	2	Hazy	—.140	44	44	—	Hazy
● S.	4	—.052	55	55	—	Ditto	29.978	50	50	—	Ditto	29.949	49	49	—	Foggy
M.	5	29.864	43	43	—	Clear	—.780	49	49	—	Drizzly & Foggy	—.616	45	45	—	Hazy
T.	6	—.457	47	47	—	Slightly Overcast	—.451	50	48	2	Fine	—.319	49	49	—	Cloudy
W.	7	28.943	52	52	—	Boisterous wh rain	28.971	54	54	—	Stormy & Wet	— 203	47	47	—	Rain
Th.	8	29.155	51	51	—	Heavy Rain	29.176	55	55	—	Rain	—.255	54	54	—	Ditto
F.	9	—.184	53	53	—	Cloudy	—.211	54	54	—	Cloudy	—.374	45	45	—	Clearing
S.	10	—.418	50	50	—	Rain	—.542	54	50	4	Fine	—.609	50	50	—	Hazy
S.	11	—.340	53	53	—	Cloudy	—.306	56	56	—	Rain	—.401	51	51	—	Stormy with rain
☽ M.	12	—.310	50	50	—	Rain	—.407	54	54	—	Stormy with rain	—.145	51	51	—	Thunder with Stormy Showers
T.	13	—.405	49	49	—	Clear	—.484	53	50	3	Fine	—.623	44	44	—	Clear
W.	14	—.580	45	45	—	Damp	—.679	49	49	—	Ditto	—.684	43	43	—	Fine
Th.	15	—.816	36	36	—	Clear	—.773	46	45	1	Ditto	—.717	44	44	—	Clearing
F.	16	—.866	35	35	—	Ditto	—.729	48	48	—	Ditto	—.405	46	46	—	Rain
S.	17	—.776	40	40	—	Ditto	—.799	44	42	2	Clear	—.632	46	46	—	Showers
S.	18	—.381	44	44	—	Heavy rain	—.420	47	43	4	Ditto & Fine	—.458	40	40	—	Very Clear
○ M.	19	—.575	36	36	—	Clear	—.634	44	44	—	Fine	—.774	36	36	—	Do. and Fine
T.	20	—.808	37	37	—	Foggy	—.755	45	45	—	Ditto	—.614	45	45	—	Rain
W.	21	—.672	38	38	—	Ditto	—.743	44	44	—	Slight Fog	—.899	31	31	—	Frosty Fog
Th.	22	—.867	32	32	—	Ditto	—.694	45	45	—	Hazy	—.650	39	39	—	Rain
F.	23	—.837	35	35	—	Hazy	—.950	42	41	1	Clear	30.149	31	31	—	Clear & Frosty
S.	24	30.266	28	28	—	Thick Fog	30.280	33	33	—	Rather Foggy	—.351	30	30	—	Verydense fog
S.	25	—.381	28	28	—	Ditto	—.341	30	30	—	Foggy	—.294	28	28	—	Ditto
☾ M.	26	—.322	28	28	—	Ditto	—.334	36	36	—	Fine	—.423	31	31	—	Ditto
T.	27	—.472	33	33	—	Drizzly & Foggy	—.464	39	39	—	Dense Fog	—.494	37	37	—	Ditto
W.	28	—.468	38	38	—	Drizzly	—.447	42	41	1	Fine	—.421	37	37	—	Fine
Th.	29	—.358	38	38	—	Damp	—.279	40	39	1	Ditto	—.248	40	40	—	Cloudy
F.	30	—.274	34	34	—	Ditto	—.236	37	33	4	Ditto	—.252	33	32	1	Clear
S.	31	—.280	32	32	—	Clear	—.268	36	35	1	Ditto	—.302	29	29	—	Frosty & Fine
		29.824	41.06	41.06	—		29.823	45.74	44.9	.84		29.827	41.45	41.42	.03	

DECEMBER.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	47	43	51	38	NW	Little			
2	47	42	51	40	——	Ditto		.01	
3	45	42	+61	40	SW	Ditto			
4	49	41	50	35	W	Ditto			
5	50	42	50	39	SW	Ditto		.02	
6	53	45	58	45	——	Ditto		.02	
7	54	46	54	45	S.	Strong		.37	
8	55	51	56	49	SW	Brisk		.36	
9	55	44	55	40	——	Ditto		.31	
10	54	47	59	44	——	Little		.04	
11	56	47	60	45	S	Ditto		.12	
12	+57	44	57	44	——	Strong		.26	
13	53	36	59	30	——	Ditto		.07	
14	49	36	53	31	W	Little			
15	48	36	53	27	SW	Ditto		.07	
16	52	39	53	34	——	Ditto		.22	
17	50	42	51	37	——	Ditto		.28	
18	49	36	53	29	——	Ditto			
19	48	34	52	29	——	Ditto			
20	48	35	50	29	——	Ditto		.10	
21	48	37	49	23	——	Ditto			
22	50	33	51	27	——	Ditto		.04	
23	46	26	49	—16	——	Ditto			
24	38	26	43	25	——	Ditto			
25	37	25	40	23	——	Ditto			
26	43	29	48	27	SE	Ditto		.06	
27	41	37	41	32	S	Ditto			
28	45	35	51	32	W	Ditto		.02	
29	44	34	49	29	N	Ditto			
30	40	29	50	23	NE	Ditto		.01	
31	40	—24	47	18	——	Ditto			
	48.09	37.51	51.74	33.06				2.38	

Nearly an average quantity of Rain fell in this month; the degree of moisture however in the atmosphere was unusually great: with a few exceptions, the indications of the Hygrometer shewed it to be in a state of complete saturation. The 7th was stormy and wet, as was likewise the 12th, accompanied with thunder. The night of the 24th was remarkable for an extremely dense Fog, which continued for several days and nights. The Barometer on the 7th was extremely low.

Mean Pressure from the 3 daily observations 29°.824 inches.
—— Temperature .....Ditto..... 42°.75
—— Dew Point ....Ditto..... 42°.46
—— Degree of Dryness.....Ditto..... .29
—— Degree of Moisture....Ditto..... .987
—— Force of Vapour .....Ditto..... .309 inch.
Least observed degree of Moisture ..... .868
Maximum Temperature in Shade ..... 57°
Minimum Temperature in ditto ..... 24°
Maximum Temperature in the Sun ..... 61°
Minimum of Terrestrial Radiation ..... 16°
Mean Temperature of External Air ..... 42°.5

WINDS.

North	1 days	N. East.....	2 days
South	5 ..	S. East	1 ..
East	0 ..	S. West 17	..
West	3 ..	N. West....	2 ..

31 days.

Amount of Rain..... 2.38 inch.

Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1831; deduced from the Observations recorded in the preceding Journal.

1831.	Pressure.								Temperature.											
					Mean at			Mean of the three	In the Shade.			Mean at			Mean of the three	In Sun's Rays.		Terrestrial Radiation		Med. of Sun and
Months.	Max.	Min.	Med.	Range of Barom.	Morn.	Noon.	Night.	Observations.	Max.	Min.	Med.	Morn.	Noon.	Night	Observs	Max.	Min.	Max.	Min.	Radn.
Jan. .	30.665	29.151	29.887	1.514	29.901	29.873	29.833	29.885	50	20	35.5	34.4	39.0	34.8	36.1	66	33	44	8	36.4
Feb. .	30.446	28.994	29.877	1.452	29.848	29.873	29.901	29.874	65	13	42.5	41.7	47.8	40.4	43.3	80	41	50	5	44.5
March	30.515	29.177	29.902	1.338	29.904	29.886	29.907	29.899	65	30	46.2	45.3	51.8	44.1	47.1	81	49	49	19	47.5
April	30.470	29.209	29.737	1.261	29.749	29.723	29.727	29.733	69	31	51.4	51.2	57.8	47.3	52.1	83	62	45	23	53.0
May .	30.357	29.452	29.928	0.905	29.934	29.929	29.926	29.929	78	28	54.5	55.2	62.1	50.2	55.8	117	61	53	16	62.7
June.	30.211	29.646	29.962	0.565	29.960	29.964	29.963	29.962	83	41	61.4	62.2	67.7	57.2	62.3	110	73	54	32	69.3
July .	30.364	29.584	29.975	0.780	29.983	29.970	29.986	29.976	86	47	64.8	65.7	72.0	61.2	66.3	117	77	55	40	73.9
Aug.	30.258	29.642	29.956	0.616	29.959	29.955	29.954	29.956	84	45	65.4	65.8	72.0	61.1	66.3	109	85	60	39	74.2
Sept.	30.270	29.582	29.930	0.688	29.946	29.923	29.926	29.931	76	37	58.6	57.6	64.7	54.3	58.9	99	72	58	31	65.5
Oct. .	30.423	29.246	29.886	1.177	29.889	29.882	29.890	29.887	73	31	56.5	56.0	61.5	54.9	57.4	86	59	58	26	58.3
Nov. .	30.578	29.287	29.935	1.291	29.928	29.923	29.942	29.931	58	25	43.0	42.6	47.5	41.9	44.0	67	43	49	15	43.6
Dec. .	30.494	28.943	29.825	1.551	29.824	29.823	29.827	29.824	57	24	42.5	41.0	45.7	41.4	42.7	61	41	49	16	42.4
Aver.	30.421	29.326	29.900	1.094	29.902	29.893	29.902	29.899	70.3	31	51.6	51.5	57.4	49.	52.7	90.5	58	52	22.5	55.9

1831.	Hygrometer indicating Dew Point.								Scale of the Winds.									Rain.	
	Mean Dew Point at			Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness.	Mean degree of Moisture.	Least degree of Moisture.											
Months.	Morn.	Noon.	Night.						N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	In.	Pts.
Jan. .	34.0	37.6	34.6	35.4	0.243	0.67	979	758	4	6	6	3	8	1	3	0	31	1	02
Feb. .	41.0	43.9	39.9	41.6	0.299	1.70	934	574	1	1	3	0	6	6	10	1	28	2	27
March	44.1	46.0	43.8	44.6	0.335	2.48	917	540	0	3	6	0	4	5	13	0	31	1	91
April	48.9	50.0	46.5	48.4	0.381	3.64	886	555	2	10	4	3	8	0	2	1	30	1	96
May .	50.4	50.7	48.9	50.0	0.400	5.82	818	443	3	5	12	2	6	1	0	2	31	2	21
June.	57.5	56.2	55.9	56.5	0.501	5.81	833	391	4	1	0	0	0	14	9	2	30	1	37
July .	60.9	60.6	59.9	60.5	0.568	5.84	829	436	1	1	8	0	0	10	9	2	31	2	52
Aug.	62.8	62.1	60.3	61.7	0.589	4.58	861	441	4	2	4	0	6	3	10	2	31	1	59
Sept..	57.1	59.1	54.3	56.8	0.505	2.04	935	673	4	1	3	0	10	6	2	4	30	4	19
Oct.	55.8	58.9	54.5	56.4	0.498	1.06	965	741	0	0	1	1	19	8	2	0	31	3	81
Nov.	42.4	45.6	41.7	43.2	0.319	0.74	972	734	0	1	2	1	3	12	8	3	30	1	70
Dec. .	41.0	44.9	41.4	42.4	0.309	0.29	987	868	1	2	0	1	5	17	3	2	31	2	38
Aver.	49.6	51.4	48.4	49.8	0.411	2.9	909	596	24	33	49	11	75	83	71	19	365	26	93

XLIV. *A Report upon the Varieties of the Bean cultivated in the Garden of the Horticultural Society. By* Mr. George Gordon, *Under Gardener in the Kitchen Garden Department.*

This and the following report are intended to reduce the discordant nomenclature of the seed-shops to something like order; to enable the gardener to know the quality of the sorts he is unaccustomed to cultivate, and above all to prevent his buying the same kind under different names. The results which have been arrived at are taken from the observations of several successive years, and the comparison of many thousand samples; from which it appears that only eleven kinds of Beans can be distinguished among forty-three reputed varieties.

No. 1. Dwarf Fan.

French Synonym. Féve naine à chassis.
English Synonyms. Fan or Bog—Dwarf Cluster or Bog—Broad.

Leaves ovate, slightly acuminate, and mostly seven in number, of a dark green colour. Stems about two and a half feet high. Blossoms white, with the vexillum, or upper petal striped with brown, and two dark brown spots on the alæ or side petals. Pods short and nearly round, seldom containing more than three beans, which are white, small and nearly oblong. A very abundant bearer, rather late and of good quality.

No. 2. Early Mazagan.

French Synonym. Féve de Mazagan.
English Synonyms. Mazagan—Stidolph's New Early.

Leaves ovate, rather large and plane, mostly six but sometimes seven in number, of a light green colour. Stems about four and a half feet high, but sometimes more if the seeds are sown early. Blossoms white, with the vexillum striped with brown, and two dark brown spots on the alæ. Pods rather short, seldom containing more than four beans, which are small, oblong and thick, of a white colour. This is the best bean in the collection for early sowing, as it is hardy, a good bearer, and early.

No. 3. Red Blossomed.

French Synonym. Féve à fleurs pourpres.
English Synonyms. Early Asper—Scarlet Blossomed—Purple Blossomed.

Leaves ovate, slightly pointed, not very large and seldom more than six in number, of a pale green colour. Stems about four feet and a half high. Blossoms varying, sometimes of a light red, at others of a dark crimson colour. Pods short and much pointed, seldom containing more than three beans, which are small, short and thick, of a rusty white colour when ripe. This is only fit for ornament; it is but a moderate bearer, and will not keep long after gathering, as it soon turns black.

No. 4. White Blossomed.

English Synonym. White Blossomed Long Pod.

Leaves nearly oblong and rather pointed, mostly six in number, rather large and of a light green colour. Stems about four feet high. Blossoms pure white. Pods rather long and nearly round, mostly containing four beans, which are small and nearly oblong, of a rusty white colour when ripe. This like the preceding one, is of very little value, as it bears but moderately.

No. 5. Violette.

French Synonym. Féve verte de la Chine.

Leaves oblong and pointed, mostly six in number, rather large and of a light green colour. Stems about four and a half feet high. Blossoms white with the vexillum striped with brown and two dark brown spots on the alæ. Pods long and broad, mostly containing three but sometimes four beans, which are large and broad, white stained with purple when young, but when ripe of a dark red colour. This is a tolerably good bean, and worth growing as it is somewhat later than the Mazagan in coming into use.

No. 6. Long Pod.

French Synonym. Féve à longues cosses.

English Synonyms. Common Long Pod—Hang Down Long Pod—Early Long Pod—Large Long Pod—Sword Long Pod—Windsor Long Pod—Moon—Wrench's Early Moon—Lisbon—Early Lisbon—Sandwich.

Leaves ovate, slightly pointed and very large, mostly five, but sometimes six in number, of a dark green colour. Stems about four and a half feet high. Blossoms white, with the vexillum striped with brown, and two brown spots on the alæ. Pods long but not very broad, mostly containing four, but sometimes five beans, which are large, broad, thin, and white. This is a good bean and of excellent quality.

No. 7. Dutch Long Pod.

Leaves nearly oval and plane, very large and seldom more than six in number, of a light green colour. Stems about five feet high. Blossoms white, with the vexillum striped with brown, and two brown spots on the alæ. Pods long and broad, containing five or

six beans, which are large, broad and white. This is the best bean in the collection for general cultivation, a good bearer, of good quality and rather late.

No. 8. Green Long Pod.

French Synonyms. Féve verte—Féve toujours verte.
English Synonyms. Green Nonpareil—Green Genoa.

Leaves oblong and rather pointed, mostly six in number, very large and of a light green colour. Stems about four and a half feet high. Blossoms white, with the vexillum striped with brown, and two dark brown spots on the alæ. Pods long and not very broad, mostly containing four beans, which are small, oblong and rather thick, of a green colour, both when young and when ripe. This is one of the best bearers and a good bean for summer use, as it is rather late and looks well even if a little old.

No. 9. Windsor.

French Synonym. Féve de Windsor.
English Synonyms. Kentish Windsor—Taylor's Windsor—Broad Windsor—Mumford—Small Spanish.

Leaves ovate, very large, and mostly six in number, of a dark green colour. Stems about four and a half feet high. Blossoms white, with the vexillum striped with a dark brown, and two brown spots on the alæ. Pods short and very broad, seldom containing more than two beans, which are very large and nearly round, of a white colour. This is the best bean in the collection for summer use, as it remains longer in perfection than any other, except the green Windsor. The Mumford is only the smaller seed of the common Windsor Bean separated by sifting.

No. 10. Green Windsor.

English Synonym. Toker.

Leaves ovate and very large, mostly six but sometimes seven in number, and of a dark green colour. Stems about five feet high. Blossoms white with the vexillum striped with brown, and two brown spots on the alæ. Pods short and broad, seldom containing more than two beans, which are large and very broad, and like the Green Long Pod, retaining their green colour after being ripe.

No. 11. Dark Red.

English Synonym. Red Windsor.

Leaves oval and slightly pointed, mostly six in number, very large and of a dark green colour. Stems about four feet high. Blossoms white with the vexillum striped with brown, and two dark brown spots on the alæ. Pods short and broad, mostly containing two beans, (but sometimes three), which are large and broad, of a light red colour when young, and of a very dark red when ripe. This is a good kind, but is not liked by the cooks on account of its red colour; it is of good quality and rather late.

The following are the best sorts for Spring or early Sowing:—Early Mazagan and Green Long Pod. For Summer or Late Sowing:—Windsor, Dutch Long Pod, and Green Windsor.

XLV. *A Report upon the Varieties of the Pea cultivated in the Garden of the Horticultural Society. By* Mr. George Gordon, *Under Gardener in the Kitchen Garden Department.*

In consequence of the great number of varieties of the Pea it has been found convenient to separate them into the following classes.

I. *Common Dwarf Peas.*	With small roundish pods, white peas, and stems not more than three feet high.
II. *Common Tall Peas.*	With round pods, white peas, and stems requiring sticks.
III. *Dwarf Marrow Peas.*	With broad pods, peas particularly sweet when young, and stems not more than four feet high.
IV. *Tall Marrow Peas.*	Like the last, but with stems requiring sticks.
V. *Sugar Peas.*	With pods destitute of the usual tough lining, and eaten like kidney-bean pods; the peas white.
VI. *Imperial Peas.*	With the strong growth of the Marrows and the small round pods of the Prussians.
VII. *Prussian Peas.*	With the stems branching very much, and roundish not very large pods; the latest of any class.
VIII. *Grey Sugar Peas.*	With pods like those of the fifth class, but with flowers of a purplish colour, and peas spotted, or any colour but white.
IX. *Grey Common Peas.*	With purple or white flowers, and peas any colour but white.

Class I. COMMON DWARF PEAS.

No 1. Bishop's Dwarf.

About two feet high, and of strong growth. Pods short and broad, mostly containing four or five peas. Only a moderate bearer, a week later than the Early Frame and hardly worth growing. It flowers the first in the collection.

No. 2. Early Dwarf.

French Synonym. Nain hâtif.

This pea grows about a foot and a half high, and somewhat resembles the preceding one, but is more prolific, of a darker green, and about a week later in coming into use. Pods small and rather broad, mostly containing five peas. It is the best of the dwarfs, as it is very prolific and of good quality.

No 3. Dwarf Brittany.

French Synonyms. Très nain de Brétagne—Très nain de Brest.

About six or eight inches high, of a dark green colour and of slender growth. Pods small and nearly round, mostly containing five peas. It is a few days later than the preceding, and is very fit for late sowing, as it is a good bearer.

No. 4. Common Spanish Dwarf.

French Synonym. Pois en éventail.
English Synonyms. New Early Spanish Dwarf—Spanish Dwarf or Fan—Dwarf Bog—Knox's Dwarf.

About two feet high and of strong growth. Pods rather broad, flat and not very long, mostly containing four or five peas. A moderate bearer and a few days later than Bishop's, which it somewhat resembles.

No. 5. Large Spanish Dwarf.

About three feet high and very strong. Pods longer than the Common Spanish Dwarf and nearly round, mostly containing five or six peas. Like the preceding only a moderate bearer.

Class II. COMMON TALL PEAS.

No. 6. Early Frame.

French Synonyms. Pois le plus hâtif—Vert à rames de mont Julienne—Michaux de Hollande—Pois Baron—Pois Laurent.

English Synonyms. Best Early—Early Single Blossomed—Early Double Blossomed Frame—Early One Eyed—Double Dwarf Frame—Single Frame—Early Dwarf Frame—Superfine Early—Batt's Early Dwarf Nimble—Early Wilson—Young's Very Early—Early Nicholas—Perkins's Early Frame—Early Nana—Mason's Double Blossomed—Russell's Fine Early—Early French—Dwarf Albany.

About four feet high and rather slender. Pods small and round, mostly containing five or six peas. Very prolific, of excellent quality and the earliest pea in the whole collection. The number of blossoms on this pea entirely depends on the soil and situation it is grown in. It must not be confounded with the Early Charlton.

No 7. Early Charlton.

French Synonyms. Dominé—Michaux ordinaire—Michaux—De Ruelle—Michaux précoce.

English Synonyms. Golden Charlton—Early Sugar Frame—Late Dwarf—Twesly Dwarf—Hotspur—Wrench's Hotspur—Double Dwarf Hotspur—Early Hotspur—Golden Hotspur—Common Hotspur—Early Nicholas Hotspur—Nimble Taylor—Very Fine Late Garden—Paddington—Essex Reading—Russell's Early Blossomed.

About five feet high and of strong growth. Pods large, broad and rather flattened, mostly containing six or seven peas. A very prolific bearer, of excellent quality and the best pea for standing the winter in the collection. It is about a week or ten days later than the Early Frame, but will continue much longer in bearing, and like the preceding, varies in appearance according to soil, situation, &c.

No. 8. D'Auvergne.

About five feet high and rather slender. Pods very long, nearly round, much curved and tapering a good deal to the extremities,

mostly containing eleven or twelve peas (if well grown.) A very abundant bearer of excellent quality and later than the Early Charlton in coming into use. It is the best pea for *produce*, and deserves to be generally cultivated in all gardens.

No. 9. EASTERN SHORE.

About five feet and a half high and rather slender. Pods small, short and round, mostly containing four or five peas. A very abundant bearer, coming in after the Charlton.

No. 10. TALL FRAME.

About five feet and a half high and rather slender. Pods small, round and rather long, mostly containing six peas. Very productive, coming into use about the same time as the Charlton, to which it bears some resemblance, but is taller and of slenderer growth.

CLASS III. DWARF MARROW PEAS.

No. 11. DWARF WHITE MARROW.

French Synonyms. Hatif à la moelle d'Angleterre—Hatif à la moelle d'Espagne—Pois sanspareil.

English Synonyms. Glory of England—Wabash.

About three feet and a half high and very strong. Pods broad and not very long, of a dark green colour, containing six or seven peas. Of excellent quality but only a moderate bearer.

No. 12. KNIGHT'S DWARF MARROW.

English Synonyms. Dwarf Knight's—Knight's New Dwarf.

About three and a half or four feet high, very much resembling the Dwarf White Marrow, but of stronger growth. Pods broad and rather flat, containing five or six peas. Of excellent quality and very prolific. The seed wrinkled when ripe.

No. 13. Dwarf Green Marrow.

French Synonym. Vert hâtif à la moelle.
English Synonyms. New Green—Early Dwarf Green—Early Green—New Early Green—Royal Dwarf Marrow—New Green Nonpareil—Holloway Marrowfat—New Extra Green Marrow—Wellington—Green Rouncival.

About four feet high and of strong growth. Pods dark green, large, broad and flat, containing seven or eight peas. Of excellent quality, very prolific and rather late. Peas a light green colour, and sometimes half green and half white when ripe.

Class IV. TALL MARROW PEAS.

No. 14. Tall White Marrow.

French Synonyms. Princesse—Vert gros Normand—De Marly—Suisse.
English Synonyms. Tall Carolina—Large Imperial Marrow—New Tall Temple—Clive—Wootten—Large Carolina—White Rouncival.

About seven feet high, and of strong growth. Pods large and very broad, containing eight or nine peas. Of excellent quality, very prolific and late. This is a very good pea for summer, but will not do without stakes.

No. 15. Knight's Tall Marrow.

French Synonyms. Ridé hâtif—Ridé tardif—Ridé.
English Synonym. Knight's Late.

About six feet and a half high and of very strong growth. Pods large and broad, containing eight or nine peas. Of excellent quality and later than the preceding by a week. Peas when ripe shrivel very much and are remarkably sweet. This pea is the best of all the tall ones for late sowing in summer.

No. 16. BRANCHING MARROW.

English Synonyms. Donn's New—Prolific Isle of France.

About five feet and a half high, and of very strong growth. Pods large and nearly round, containing eight or nine peas. Of good quality and very late.

No. 17. TALL GREEN MARROW.

English Synonyms. Green Tall—New Large Green—Imperial Green.

About seven feet high and of very strong growth. Pods large, broad and rather flat, containing eight or nine peas. Of excellent quality, late and very prolific. Peas when ripe of a yellowish green colour.

No. 18. EGG.

English Synonyms. Large Egg or Bean—Patagonian.

About seven feet and a half high and of strong growth. It greatly resembles the Tall White Marrow, but the peas are much larger and not so round; in other respects nearly the same.

No. 19. WATERLOO.

English Synonym. Nonpareil.

About six feet high and very strong. It has a great resemblance to the Tall Green Marrow, but it does not grow so tall nor so strong. Peas green and rather wrinkled.

No. 20. PEARL or NONSUCH.

About six feet high, not of very strong growth, and bearing some resemblance to the Tall White Marrow, but the pods are rounder and much smaller. Of good quality but a moderate bearer.

No. 21. De Guiverigny.

About four feet and a half high, of very strong growth and resembling the Dwarf White Marrow; but much taller and the pods are rounder; in other respects nearly the same.

No. 22. Crown Pea.

French Synonyms. Turc ou couronné—Turc à fleurs blanches.
English Synonyms. American Crown—Rose or Crown.

About five feet and a half high, of very strong growth, with the blossoms in tufts at the extremity, somewhat like a crown (from which it derives its name). Pods small, round and straight, containing five or six peas. A very abundant bearer, of good quality and very good for summer use.

N. B. No. 20 and 22 should perhaps be referred to the 2nd Class, but on account of their strong growth I have placed them in the 4th Class; they differ from it only in having small pods, and from the 2d Class in growing very strong and being late.

Class V. SUGAR PEAS.

No. 23. Large Crooked Sugar.

French Synonyms. Sans parchemin blanc à grandes cosses—Mange-tout.
English Synonyms. New Pea—Sugar Pea—Broadsword—Early Spanish.

About six feet high and very strong. Pods very large, broad and much twisted, containing nine peas. Peas large and very prominent in the pods. Of excellent quality, very productive and the best in its class.

No. 24. VILMORIN'S SUGAR.

About six feet and a half high and of slender growth. Pods small, round and straight, containing seven or eight peas, which, as in all the other Sugar peas, are very prominent, even when quite young. Of excellent quality, and the greatest bearer in this class. It was received from M. Vilmorin as an "Espèce de pois très excellent."

No. 25. ALBERJAS.

About five feet and a half high and of strong growth. Pods small, round and straight, containing seven or eight peas. Of excellent quality and very prolific. It was brought from Mendoza by Dr. Gillies. There is sometimes a very thin skin inside the pods of this sort, which makes it distinct from all others in the class.

No. 26. TAMARIND PEA.

English Synonym. Late Dwarf Sugar.

About four feet high and of robust growth. Pods large, broad and much curved, containing nine or ten peas. Of excellent quality and a very abundant bearer. The pods are from four to five inches long and are produced the latest in this class.

No. 27. EARLY MAY SUGAR.

French Synonym. Nain à la moelle d'Espagne.
English Synonyms. Early Dutch—Early Sugar—Dwarf Dutch Sugar.

About four feet high and very slender. Pods small, round and straight, containing six or seven peas. Of good quality but only a moderate bearer. This is the earliest pea in the collection, but is very tender and will not do to sow before the beginning of March.

No. 28. Dwarf Sugar.

French Synonyms. Gros nain sucré—Nain sucré.
English Synonym. Ledman's Dwarf.

About three feet high and of very strong growth. Pods long, nearly round and slightly curved, containing seven peas. Of excellent quality; a moderate bearer and late.

No. 29. Dwarf Dutch.

French Synonyms. Nain hâtif de Hollande—Nain de Hollande.
English Synonyms. Dwarf Sugar de Grace—Early Dwarf de Grace—Dwarf Crooked Sugar.

About two feet and a half high and of slender growth. Pods rather short, small and crooked, containing five peas. Of good quality, only a moderate bearer and later than the preceding by a week.

No 30. Late Wyker Sugar.

English Synonym. Late White Sugar.

About six feet and a half high and of very strong growth. Pods roundish, small and much curved, containing seven or eight peas. Of excellent quality, a good bearer and very late.

N. B. The pods of all the peas belonging to the 5th Class should be gathered when quite young, like French Beans, and cooked after the same manner without being shelled.

CLASS VI. IMPERIALS.

No. 31. DWARF IMPERIAL.

French Synonyms. Nain vert impérial—Nain vert gros—Sans parchemin vert.
English Synonyms. Imperial—Blue Imperial—Dwarf Green Imperial—New Improved Imperial—New Improved Dwarf Imperial—New Dwarf Imperial—New Long Podded Imperial—Sumatra—Green Nonpareil—Dwarf Blue Prolific—Blue Scymitar—Sabre—Blue Sabre—New Sabre—Dwarf Sabre.

About four feet high and of strong growth. Pods large, long and rather flat, much pointed and containing eight or nine peas. Of excellent quality, a good bearer and one of the best peas for summer, as it is very late in coming into use.

No. 32. TALL IMPERIAL.

French Synonyms. Carré vert—Carré vert gros—Carré vert gros Normand.
English Synonyms. Tall Green Imperial—Tall Blue Imperial—Spanish Patriot—New Tall Imperial—Blue Union—Green Nonpareil—Tall Prussian or Blue Union.

About seven feet high and rather slender. Pods broad and rather short, but not pointed like those of the preceding, and containing six peas in a pod. Of good quality and very productive, but not so late as the last.

CLASS VII. PRUSSIANS.

No. 33. BLUE PRUSSIAN.

French Synonyms. Nain vert petit—Nain Royal—Gros vert de Prusse.
English Synonyms. Dwarf Blue Prussian—Royal Prussian Blue—Fine Long Podded Dwarf—Prussian Prolific—Early Dutch Green—Green Prussian.

About three feet and a half high and of strong growth. Pods long and rather round, containing eight peas. This is so well known that it is quite useless for me to say any thing about its good qualities. It is undoubtedly the best for summer use and one of the greatest bearers.

No. 34. White Prussian.

English Synonyms. Prolific or Poor Man's Profit—Prolific—Tall Prussian—Dwarf White Prussian—New Dwarf Norman—Royal Dwarf—Royal Prolific—Dwarf Tewsly—Stowe Pea.

About four feet high and very robust. Pods broad, long and rather flat, containing seven or eight peas which are large and white. Of good quality and, like the Blue Prussian, an excellent summer pea and very prolific. This is the best sort for general cultivation and well deserves the name of Poor Man's Profit, but it will not remain so long in bearing as the Blue Prussian.

No. 35. Groom's Superb Dwarf Blue.

About eighteen inches high and of robust growth. Pods large, broad and rather flat, containing eight or nine peas. Of excellent quality, a very abundant bearer and a few days later than the Blue Prussian, of which it seems a distinct dwarf variety. Raised by Mr. H. Groom of Walworth, who sent seeds of it to the Garden in 1831. This deserves general cultivation, as it requires no sticking and produces more on the same space of ground than any other dwarf sort.

Class VIII. GREY SUGAR PEAS.

No. 36. Purple Podded Grey.

About seven feet high and of robust growth. Pods short, broad and rather pointed, of a deep purple colour, containing five or six peas. A good bearer; the peas when boiled are rather bitter, but if cooked like the pods of the Scarlet-running Kidney Bean, it is very good.

No. 37. RED FLOWERED SUGAR.

French Synonym. Sans parchemin à fleurs rouges.

About six feet and a half high and of slender growth. Pods long, nearly round and straight, containing six peas. Like the preceding it is only fit for use when quite young. A good bearer.

No. 38. FISHAMEND'S SUGAR.

About seven feet and a half high and very robust. Pods very long, broad and much curved, containing eight or nine peas, which are rather small, of a greenish-yellow colour, dotted all over with small purple dots. A good bearer and the best of all the Sugar peas (except the Large Crooked Sugar) for use when young.

CLASS IX. GREY COMMON PEAS.

No. 39. GREY ROUNCIVAL.

English Synonyms. Giant—Dutch.

About eight feet high and very robust. Pods broad but not very long and rather flat. Peas of a brown colour, black eyed, and spotted with yellow. A good bearer but only fit for field culture.

No. 40. LATE GREY.

English Synonyms. Tall Grey—Tall Capucine—Large Grey.

About eight feet high and very robust. Pods broad but not very long, containing seven or eight peas of a yellowish brown colour, black eyed and large. A good bearer.

No. 41. Maple Grey Pea.

English Synonyms. Marlborough—Partridge Grey.

About seven feet and a half high and very robust. Pods broad and rather long, containing seven or eight peas which are like those of the preceding kind but much smaller and not black eyed. This is a good bearer and the flowers are much lighter coloured than those of No. 40.

No. 42. Spanish Marotta.

French Synonyms. A œil noir—Michaux à œil noir.
English Synonyms. Tall Black Spotted Marotta—Black spotted.

About six feet high and rather slender. Pods small and nearly round, containing seven peas of a yellow colour, black eyed, small and round. It is very productive and tolerably good if gathered when young, as it is by no means so bitter as the other Grey peas when boiled.

No. 43. Bean Pea.

English Synonym. Funnel's Black Spotted.

About eight or nine feet high and very robust. Pods long, broad and not much pointed, containing nine or ten peas of a yellowish white colour, black eyed, and having some resemblance to small horse beans when ripe. It is very productive, but only fit for field culture, as it is rather bitter when boiled, although not so bitter as Grey peas in general.

The following are the Best Sorts (particularly those marked *.)

For Early Sowing.

Pois nain hâtif.
* Early Frame.
* Early Charlton.
* D'Auvergne.

For Late Sowing.

Knight's Dwarf Marrow.
* Knight's Tall Marrow.
Tall Green Marrow.
* Crown.
Branching Marrow.

Sugar Peas (not to be sown before the 1st of March.)

* Early May.
* Large Crooked.
* Vilmorin's Sugar.
* New Tamarind.

Dwarf Blue Peas for Summer use.

Dwarf Imperial.
* Blue Prussian.
* White Prussian.
* Groom's Superb Dwarf Blue.

XLVI. *On the Cultivation of the Pine Apple. In a Letter to the Secretary. By Mr.* George Warren, *Gardener to* H. J. Grant, *Esq. F. H. S.*

Read October 16, 1832.

Sir,

In consequence of the method I pursue in cultivating the Pine Apple having proved unusually successful, I beg to submit through you to the Horticultural Society the following account of my management of a crop of 76 plants, none of which produced fruit weighing less than from two to three pounds, many much more; six which were exhibited at a Meeting of the Swansea and Neath Horticultural Society, amounted to 23 lbs. 8 oz., and one which I forward to you with this communication, weighs four pounds and three quarters.

In the month of October, 1830, the suckers were taken from the parent plants, potted in small pots and plunged in the tan at the front of my older succession plants. In the month of February, 1831, wishing to grow them as large as possible, I had my succession pit, which is 21 feet long by 9 feet wide, filled with fresh oak leaves which I had collected the preceding winter, on the top of which I put a compost of two-thirds light hazel loam from a turfy pasture, and one-third rotten hot-bed manure and leaf mould to the thickness of fourteen inches. In this I planted my Pines fourteen inches apart; they grew and flourished far surpassing my expectation, so that in the month of October, 1831, my usual potting time, finding the plants doing so well, I resolved to try and fruit them as they then stood instead of potting them as was my usual practice. I at that time began to withhold the watering from the two back

rows till the latter part of January; afterwards water was given as usual, and in February several fruit began to appear; the watering was then withheld from the other rows for a time, in order to bring them on in succession. In order to obtain bottom heat to swell my fruit off, I resolved to take out the two front rows and pot them, taking out the oak leaves to the bottom of the pit; the space thus occasioned I filled with well-fermented horse dung, and covering the latter with tan, I again plunged the two rows of plants I had potted. The horse dung that I put in gave me sufficient heat to swell off my fruit to a great size. I should add that the surface of the soil was covered with *moss*, which I am persuaded was a great help in keeping the soil in a humid state without the aid of so much water.

I am, Sir,

your most obedient Servant,

GEORGE WARREN.

The Gnoll, near Neath.
Oct. 13, 1832.

Note by the Secretary.

The Council awarded the Society's Banksian Medal to Mr. WARREN for his exhibition of the Pine Apple referred to in the foregoing communication.

XLVII. *On the employment of Cats in the preservation of Fruit from Birds. By* Peter Kendall, *Esq. F. H. S. In a Letter to the Secretary.*

Read November 6, 1832.

Dear Sir,

I beg leave to communicate to the Society an easy method of preserving fruit trees and gardens from the depredations of birds, as adopted by my friend Robert Brooke, Esq. of Melton Lodge, near Woodbridge, in this county; which plan I saw in full operation a short time ago, and which he assures me he has adopted for several years with the most complete success. He has four or five Cats, each with a collar, and light chain and swivel, about a yard long, with a large iron ring at the end; as soon as the Gooseberries, Currants, and Raspberries begin to ripen, a small stake is driven into the ground, or bed, near the trees to be protected, leaving about a yard and half of the stake above ground; the ring is slipped over the head of the stake, and the cat thus tethered in sight of the trees, no birds will approach them. Cherry trees and wall fruit trees are protected in the same manner as they successively ripen; each cat, by way of a shed, has one of the largest sized flower pots laid on its side, within reach of its chain, with a little hay or straw in bad weather, and her food and water placed near her.

I think the manner of fastening the cat may be improved, so that one cat might protect a considerable distance of wall or walk, by having two iron posts, fixed in the ground, with a cord or wire attached to them and passed through the ring of the cat's chain;

the cat would thus be enabled to range the whole distance between the two posts, and might be moved from place to place as before described.

Dear Sir,

very truly yours,

PETER KENDALL.

Higham Lodge,
Stratford St. Mary's, Suffolk,
29th October, 1832.

Note by the Secretary.

In confirmation of Mr. KENDALL's statement, it may be added, that a wall of Vines between 200 and 300 yards long, in the nursery of Mr. KIRKE, at Brompton, the fruit of which in all previous seasons had been very much injured by birds, was last year completely protected, in consequence of a cat having voluntarily posted himself sentry upon it.

XLVIII. *Notes upon the Chinese Chrysanthemums. By Mr.* Donald Munro, *F. L. S. Gardener to the Society.*

Read December 4, 1832.

So much has been already published in the Society's Transactions upon the varieties of the Chinese Chrysanthemum, that it may be supposed the subject can scarcely be resumed advantageously till a fresh supply of varieties shall have been received from China.

There are, however, still a few facts connected with them which I am induced to believe will not be wholly without interest to those who occupy themselves with the cultivation of this most beautiful of autumn flowers.

In the whole we now possess forty-nine distinct varieties; the merit of which is well known to be extremely unequal. Some of them are scarcely worth cultivation on account of the insignificance of their blossoms; others, because of their flowering so late, that an English summer never lasts long enough for them; some are too tender to flower well out of doors; while many, on the other hand, are so hardy as to be well adapted to the rudest treatment and to an inclement situation.

With reference to their qualities Chrysanthemums may be classed thus:

1. Flowers large or shewy; requiring protection.

Superb White.	Tasselled White.
Paper White.	Semi-double Quilled White.
Sulphur Yellow.	Quilled flamed Yellow.
Golden Yellow.	Tasselled Lilac.
Curled Lilac.	Large Lilac.

Curled Blush.
Semi-Double Quilled Pink.
Starry Purple.
Early Crimson.
Pale flamed Yellow.
Blush Ranunculus flowered.
Brown Purple.
Two-coloured Red.
Pale Buff.

2. Flowers large, or shewy; quite hardy.

Quilled White.
Superb Clustered Yellow.
Golden Lotus-flowered.
Parks's Small Yellow.
Rose, or Pink.
Purple.
Buff, or Orange.
Changeable White.
Tasselled Yellow.
Small Yellow.
Early Blush.
Pale Pink.
Changeable pale Buff.
Spanish Brown.

3. Flowers large, or shewy; but produced sparingly.

Semi-double Quilled Orange.
Expanded Light Purple.
Large Quilled Orange.
Quilled Light Purple.
Two-coloured incurved.

4. Flowers small, or late; not worth cultivation.

Double Indian White.
Yellow Warratah.
Windsor Small Yellow.
Quilled Salmon Colour.
Semi-double Quilled pale Orange.
Late pale Purple.
Double Indian Yellow.
Late Quilled Yellow.
Quilled Yellow.
Quilled Pink.

Of those which thrive in the open air, a few may be cultivated in a very pleasing manner by being planted in the border, with their shoots laid down in the ground, so that when the flowers appear they are not more than a few inches above the surface of the soil.

For this purpose the plants must be planted out in the beginning of June, and must not be more than nine inches apart each way over the whole bed. The shoots must be stopped in the usual way about the middle of June, and afterwards layered about the beginning of August; they should not then be more than four or five inches apart, or they will not be sufficiently thick to cover the ground from being seen.

So treated, beds may be obtained in the flower garden in November and the early part of December of great brilliancy, provided the following sorts are made use of, and planted in the following manner.

1. Tasselled Yellow.
2. Quilled White.
3. Small Yellow.
4. Rose, or Pink.
5. Golden Lotus-flowered.
6. Changeable White.
7. Changeable Pale Buff.
8. Purple,
9. Early Blush.
10. Spanish Brown.
11. Pale Pink.
12. Superb Clustered Yellow.
13. Buff, or Orange.
14. Parks's Small Yellow.

They must be watered freely for the first two months, and occasionally with liquid manure; if the bed is covered over with about an inch thick of very rotten dung the luxuriance of the plants, as well as the size and beauty of their flowers, will be increased.

XLIX. *Upon the Cultivation of the Fig Tree. In a Letter to the Secretary.* *By Sir* C. M. L. Monck, *Bart. F. H. S.*

Read February 5, 1833.

Dear Sir,

Having formerly made a communication to the Society on the cultivation of fig trees, I believe I am now able to contribute some further information.

A few years ago a Fig-house was built here; the back and end walls were of stone: the front of sashes from an old mansion, at that time taken down: these were set upright, and at four feet distance from the wall; the space between was covered at the top by a sloping roof of glazed lights. The border between the upright sashes and back wall was made three feet deep of good soil, and the fig-trees grew in it luxuriantly; but the fruit was scantily produced, and never ripened freely. It appeared to me, that, for want of command of artificial heat in the wall, the temperature could not be raised so high, or maintained so well, as is necessary to bring forward the summer crop of figs in right season, before the sun is too far declined. I therefore, last autumn, took down the back wall, and rebuilt it with a flue of three ranges in a wall of ten feet high, and to ensure to my gardener the most perfect command of temperature, I caused the facing bricks to be set on edge, so that the wall, between the smoke of the fire and the inside of the house, was only two and a half inches thick. To obviate the weakness of such a wall, I caused the ranges of flue to be covered with a two and half inch thick cover of fire-stone, and upon that again another such plate of fire-stone, to serve for sole to the range of flue above; so, the two courses of soles and covers do duty for two courses of brick.

These stones, being checked to receive the bricks, bound the thin wall of facing bricks to the back part of the wall, which was of stone-work: but as so thin a facing to the ranges of flue would not well admit the use of nails in securing the trained branches of the trees, nor perhaps would the branches bear to be affixed so close to a wall through which the heat should pass so freely, I procured cast iron eyes of three-quarters of inch capacity, with shanks of six inches long, and caused the shanks to be sunk in the under side of the soles above-mentioned, so that when the wall was built, the eyes appeared in horizontal rows at one foot distance from each other, projecting out between the courses of fire-stone covers and soles: through these eyes rounded oak rods, as long as the wall is high, were drawn perpendicularly, and to these, or to willow sticks fastened to them, as occasion required, the branches were made fast by bandages of willow, cord, or bass.

My gardener wrote me word this spring, whilst I was absent in London, that the trees had put forth only a scanty crop of spring figs. I returned him direction to water the borders freely, and force with a strong heat; and that when the trees in consequence should have broken out into rapid growth, he should stop the shoots at the seventh or eighth eye. In about a month's time after this he sent me word that the trees had begun to produce an abundant crop of figs from the eyes of the new wood which had been stopped. Five or six weeks subsequently I returned home, and found the trees in luxuriant growth; but most of the fruit on the stopped wood was turning yellow; some had dropped, and much more of it was nearly ready to drop. On consideration of what might be the cause of this disappointment, it appeared to me that the high temperature, with a plentiful watering and rich soil, had excited a luxuriant growth of wood, to which the sap had been diverted, and the fruit in consequence was starving. To remedy this, I directed all the fruitful branches to be ringed. In five or six days after this had been done, it

became evident that the growth of wood was checked; and, what surprised me, and is the cause of my making this communication, the fruit, which had only begun to turn yellow, or had only turned partially so, recovered its green colour, and ripened. I observed that some of the fruit which had not begun to turn yellow, when the branches were ringed, became full sized when ripe: the others more or less so in proportion apparently as they had become more or less yellow, and therefore more or less certain to drop. It is to these particulars that I wish to direct attention. The fig is, except in the particular of bearing its flowers internally, similar in the structure of its fructification to the compound flowers, such as daisies, sunflowers, Chrysanthemums, and the course of flowering in most of such plants is, for the florets next the edge of the disk to be the first expanded, and afterwards the inner circles of florets in succession from the edge to the centre. I take the fig to do the same, and the supposition is confirmed by this, that, the fruit in ripening begins at the eye and proceeds towards the stalk. I therefore conjecture that, when the fruit begins to shew yellowness, the florets within have been in part expanded and failed to set, and that, as the failure proceeds, the yellowness becomes more general till all have failed, and then the fruit drops: but if, when some certain proportion, perhaps half or more, may have failed, the tree by any treatment, such as increased temperature, with sun, and diminution of supply of moisture to the root, or ringing, or caprification (as practised in the Levant) is induced to set any florets, the fruit, the common receptacle, is no longer in progress to inutility; but becomes necessary to maintain the fertilized florets: it must therefore cease to turn yellow, and recover greenness, which as I have described was the case with my trees.

My object in this communication is to induce gardeners, who may find their crop of figs begun to turn yellow, and therefore certainly condemned to drop, if not saved by art, to repeat my experiment of

ringing behind the fruit; and if repetition of the experiment by others should shew the certain utility of the practice, we shall possess the only particular still wanting to our perfect command over the produce of the fig tree; for no fruit tree, as far as I know, is so easily propagated, forced by soil and temperature to produce abundant crops of fruit, and, except they fail of setting, made to bring them to perfect maturity.

Believe me,
dear Sir,
your very obedient Servant,
CHARLES MONCK.

Belsay, 13th Jan. 1833.

L. *On the means of obtaining abundant Autumnal Crops of the Double-bearing Hautbois Strawberry.* *By* T. A. Knight, *Esq. F. R. S. President.*

Read May 21, 1833.

The Hautbois Strawberry is rarely seen in forcing-houses; probably because the presence of barren, as well as productive plants, has generally been necessary; and not improbably, in part, because this species of fruit has not been thought capable of acquiring any high degree of perfection in the forcing-house. The first objection does not apply to the Double-bearing Hautbois, and the second is without foundation.

Early in the spring of 1832 I introduced a few plants of the Double-bearing Hautbois Strawberry into a forcing-house, from which I obtained some very fine and excellent fruit, and (what I chiefly wanted to obtain) numerous very early runners. These were detached from the old plants as soon as they had acquired sufficient maturity; and they were immediately planted in pots, which, during a few days were kept in the forcing-house, with a view of causing the plants to emit roots more freely. The pots were then, early in May, removed into the open air, and the plants soon after blossomed very profusely, and, in August, afforded much fruit of very large size, and of very excellent quality; and the fruit continued to ripen in succession through the following months. I had retained all my plants in pots with the intention of replacing them in the forcing-house if the fruit did not ripen well in the open air; but they were not removed to the forcing-house, because the fruit ripened more early, and more perfectly, than I had anticipated.

In the present year the same experiment has been repeated, but

the plants have been wholly put into the open ground. I have, of course, not seen the result: but I do not entertain any doubt of its being successful, though the climate in which the experiment is made is not favourable.

By raising many seedling plants from the Double-bearing Hautbois Strawberries, I entertain very little doubt but that varieties might be obtained which would possess habits more resembling those of the Alpine Strawberries; and I think it not improbable that similar habits might be given to other species of Strawberries, for the Roseberry Strawberry not very unfrequently affords an autumnal crop.

The early runners of KEEN's seedling Strawberry have not, in my hands, afforded blossoms in the season; but if the old plants, which have borne an early crop in the forcing-house, be taken out of their pots with all the mould and roots adhering to them, and planted in rich soil, and profusely supplied with water, an abundant crop will be obtained in Autumn. I have succeeded in making this experiment with the Old Scarlet Strawberry; but KEEN's seedling is greatly preferable.

Plants of the Double-bearing Hautbois Strawberry appeared in the experiments above-mentioned to be more subject to attacks from the red spider and aphis, than those of other species of Strawberry; but I am prepared to speak only upon the evidence of a single season.

LI. *On the Management of the Cactus. In a Letter to the Secretary. By Mr.* JOHN GREEN, *Gardener to Sir* EDMUND ANTROBUS, *Bart. F. H. S.*

Read June 4, 1833.

SIR,

AGREEABLY to your request, I now send you an account of my management of the specimens of the Cactus speciosus, speciosissimus, Jenkinsoni, &c., which I had the honour to exhibit at the Horticultural Society on the 21st of last month.

The compost that I use is an equal quantity of light turfy loam and pigeon's dung, and one-third sheep's dung, exposing the mixture one year to the influence of the summer's sun and winter's frost to mellow; when wanted for use, I add one-third of sandy peat, in both cases mixing them well together.

I grow the *young* plants from February to July, in the forcing flower-house, kept from 55° to 60° FAHRENHEIT; I afterwards remove them to a shelf in an airy situation in the green-house, exposed to the mid-day sun, giving them plenty of air and little water. The plants that I want to flower the following September, are placed in the forcing-house the first week in December, giving them very little water for the first ten days, and gradually increasing the water as the plants advance in growth. About the 1st of February I stop all the young shoots, which soon become well ripened; from this time I decrease the quantity of water until they become quite dry, in order to throw the plants into a state of rest: in the beginning of March I replace them in a cold shady situation in the green-house, keeping them quite dry until the following June, when I put them again in the forcing house, treating them as before. For plants to flower in August, I place a quantity more in the forcing-house the first week in January, treating them the same as those for September; only they are put to rest in the green-house a fortnight later, and replaced in the forcing-house one week sooner.

The first flowering plants are put in the forcing-house the end of January, and will come into flower about the middle of March; when these plants have done flowering, and are removed from the drawing-room or green-house, I prune out most of the old shoots that have flowered, so that the plants are furnished regularly with young shoots for flowering the ensuing year; these plants are also placed in the forcing-house for ten days to ripen the young wood and dry up the moisture, and are then put to rest in the green-house as usual; such plants will flower a second time in October; others put in the forcing-house the middle of February, will flower about the end of April: if then pruned and dried and put to rest as before, will flower a second time in November, and so on in proportion. I re-pot them at all seasons whenever the plants may require it, always observing to keep the pots well drained with pot-sherds, that the moisture may pass off readily; this process may be considered troublesome, but superior growth and abundance of flowers amply repay the care bestowed. By the above treatment, the Cactus speciosus and Jenkinsoni have generally produced from ninety to a hundred fine expanded flowers at one year old. The plants that I brought to the Society were about two years old, the C. speciosus bore two hundred flowers, C. speciosissimus seventy-two, and C. Jenkinsoni one hundred and ninety-four. I prefer growing them in wooden tubs with wire stakes fixed to the tub, to the usual mode of supporting them by stakes driven into the ball of the plant which I consider injures the fibre and makes the plant appear unsightly.

I am, Sir, your very obedient Servant,

JOHN GREEN.

Note by the Secretary.

The Society's Banksian Medal was awarded for the Cacti alluded to in the foregoing communication. The specimens were of most unusual beauty.

LII. *Report on some of the more remarkable Hardy Ornamental Plants raised in the Horticultural Society's Garden from seeds received from Mr.* David Douglas, *in the years* 1831, 1832, 1833. *By* George Bentham, *Esq. F. L. S. Secretary.*

Read January 21, 1834.

The reasons which induced the Council of the Horticultural Society of London to engage Mr. Douglas to undertake a second expedition to the North West Coast of America are mentioned in the preface to the 7th volume of the Transactions, where it is also stated that he embarked on the 26th of October, 1829. After a prosperous voyage, he safely landed in the spring of 1830 at the mouth of the Columbia River.

Here he met with many difficulties and disappointments as to the journies he had intended to make to those parts of the interior which promised the best to reward his exertions. The natural obstacles opposed by the wild state of the country were in many cases rendered invincible by the dangerous character of the natives, and the whole season of 1830 was consumed in short excursions in the neighbourhood of the Hudson's Bay Company's Fort.

In the winter of 1830-1831 an opportunity occurred of communicating with the northern part of Spanish California, of which Mr. Douglas availed himself, and landed early in 1831 at San Francisco, from whence he proceeded to the Spanish settlement of Monterey. At this place he was well received by the monks, and every facility was afforded him for exploring the country in the neighbourhood. He remained there the whole summer of 1831, intending to return to the Columbia river in the autumn of that year by the vessel which had brought him to Monterey, and which

was expected again to touch on that coast. Owing however to the death of the captain, the opportunity did not present itself; and the crossing the wild and inhospitable mountains of New Albion was too formidable an undertaking for him in the circumstances in which he was placed. Mr. Douglas was consequently detained in California a second season, which he spent in various excursions into the interior, North and South of the settlement, and finally left Monterey in the month of August, 1832, for the Sandwich Islands. From thence he dispatched to this country his Californian herbarium and seeds, and afterwards returned to the Columbia River.

Mr. Douglas appears to have applied himself with the same zeal, as during his former expedition, to the making and forwarding to the Society such collections as might best contribute to its objects; but considerable difficulties have arisen in the means of transmission. The seeds and roots sent by sea suffered much from the length of the voyage, during which it was also necessary twice to cross the equator, and to pass alternately through the extremes of heat and cold; and some of the overland dispatches never reached England, having been, it is feared, lost amidst the confusion to which the troubled state of Mexico had given rise. However, one package in particular, dispatched from Monterey, and one from the Columbia River, arrived safely and in good condition; and about sixty species of plants, more or less useful or ornamental, have been raised from these seeds in the Society's garden.

Of the former description the most remarkable are several species of Pinus, likely to prove valuable additions to our stock of timber-trees, but as these are still necessarily too young for description from the living specimens, it will be sufficient at present to mention the names of P. Sabiniana, monticola, amabilis, nobilis, grandis, insignis, and Menziesii, given to them by Mr. Douglas.

Amongst the ornamental plants the following new species have

been already described, and have been more or less generally distributed amongst the Fellows of the Society.

Lupinus rivularis. *Dougl. Bot. Reg.* 19, t. 1595.
Clarkia elegans. *Dougl. Bot. Reg.* 19, t. 1575.
Calandrinia speciosa. *Lindl. Bot. Reg.* 19, t. 1598.
Œnothera densiflora. *Lindl. Bot. Reg.* 19, t. 1593.
Madia elegans. *Lindl. Bot. Reg.* 18, t. 1458.
Stenactis speciosa. *Lindl. Bot. Reg.* 19, t. 1577.
Nemophila aurita. *Lindl. Bot. Reg.* 19, t. 1601.
Mimulus roseus. *Dougl. Bot. Reg.* 19, t. 1591.
Calochortus luteus. *Dougl. Bot. Reg.* 19, t. 1567.
Calliprora lutea. *Lindl. Bot. Reg.* 19, t. 1590.
Hesperoscordon lacteum. *Lindl. Bot. Reg.* 19, t. 1639.

The species which form more particularly the subject of this Paper, are selected from among those that are as yet unpublished, with the occasional addition of short notices taken from the dried specimens transmitted by Mr. Douglas of some species not yet raised in the garden.

Platystemon californicum.

Char. Gen. Platystemon.* Sepala 3, ovata, caduca, pilosa. Petala 6. Stamina numerosa. Filamenta dilatata, membranacea, obcordata. Antheræ lineares, biloculares, lateraliter dehiscentes. Ovaria plurima, (10 et ultra), linearia, stigmate sessili lineari terminata. Capsulæ totidem, distinctæ, torulosæ, articulatæ, indehiscentes, transversim multiloculares, extus piloso-hispidæ. Semina in quoque loculo solitaria, pendula.

This little annual flowered very sparingly, but the fine specimens transmitted by Mr. Douglas in a dry state promise that it may be-

* Mr. Douglas transmitted this species with the MS. name of Boothia, but as foreigners would be unable to distinguish the sound of this word from Boottia, the name of a genus dedicated to Dr. Boott by Dr. Wallich, I have been obliged to give a new one to Mr. Douglas's plant.

come as interesting to the horticulturist from its beauty as it is to the botanist, from forming the connecting link between the Ranunculaceæ and Papaveraceæ. The trisepalous calyx, and numerous distinct ovaria would have placed it in the former order were it not for the structure of the anthers, the very deciduous sepals, and the general habit, which do not admit of its being removed from Papaveraceæ, especially considering its close affinity with Eschscholtzia through Platystigma and Dendromecon.

It is a low, branching, erect, and pale green annual, seldom attaining beyond a foot in heighth. The whole plant is smooth, with the exception of long spreading hairs on the peduncles, the margins, and here and there the surface of the leaves, and on the calyx and ovaria. The leaves are alternate, the upper ones often several so near together as to have the appearance of an imperfect whorl; they are oblong, lanceolate, obtuse, perfectly entire, embrace the stem at the base, and are marked with from three to five parallel ribs. The peduncles are solitary, axillary, about six inches long, and bear at the extremity a single erect flower, rather larger than that of the common Helianthemum. The sepals are very hairy, round-ovate and obtuse; the petals yellow, with occasionally a reddish tinge outside. The flower is sweet scented, and of a pale straw-colour.

Mr. Douglas's dried collection contains also specimens of two other plants, each forming a new genus of the same order of Papaveraceæ, characterised as follows.

Platystigma. Sepala 3, ovata, caduca, pilosa. Petala 4-5. Stamina numerosa. Filamenta filiformia. Antheræ lineares, biloculares, lateraliter dehiscentes. Stigmata 3, ovata, acuta, erecto-divergentia. Capsula oblonga, basi attenuata, 1-locularis, 3-angularis, 3-sulcata, 3-valvis, ab apice ad basin dehiscens: valvulis conduplicatis margine in placentis filiformibus productis. Semina numerosa, minuta, ovoidea, nigra, lævissima, nitida.

P. *lineare.*

Herba pusilla, cæspitosa. Caules brevissimi, dense foliosi. Folia linearia integerrima, amplexicaulia, 1-nervia. Pedunculi semipedales, erecti, uniflori, patentim pilosi.

A smaller plant than the Platystemon and growing in closer tufts, but otherwise resembling it very much in habit, though so different in botanical character. The flowers are yellow, rather smaller than those of Platystemon.

Dendromecon. Sepala 2, ovata, caduca. Petala 4. Stamina plurima. Filamenta filiformia. Antheræ lineares. Stigmata 2, sessilia, brevia, crassiuscula. Capsula elongata, siliquæformis, 1-locularis, bivalvis, valvulis coriaceis duris a basi ad apicem dehiscentibus. Placentæ marginales, filiformes. Semina plurima, majuscula, pyriformia, lævia.

D. *rigidum.*

Fruticulus dense foliosus, rigidus, glaber. Folia lanceolata, acuta, denticulata, penninervia, reticulata, rugosa, rigida. Pedunculi axillares, uniflori.

A very remarkable plant in this order, on account of its shrubby stem and coriaceous leaves and capsules. The flowers appear to be yellow, and nearly as large as those of Papaver nudicaule.

Eschscholtzia crocea.

E. caule ramoso folioso, foliorum segmentis linearibus, pedunculi cyatho infundibuliformi: limbo maximo dilatato, calyce longe acuminato.

In general habit, foliage, and size of the flower, this new species of Eschscholtzia closely resembles the E. californica, introduced by Mr. Douglas on his first expedition, and now so generally admitted to be one of the most beautiful additions to our hardy ornamental plants. The present species, however, promises far to surpass even that one in the rich orange colour of the petals. It appears to be equally hardy, and, judging from the experience of a season, to flower still more freely. It is distinguished botanically from E. californica by the widely expanded limb of that curious appendage of the peduncle beneath the insertion of the calyx which is characteristic of the genus, and by the long attenuated point of the calyx.

The following new species of the same genus have been sent home in a dry state by Mr. Douglas; but no seed of them has vegetated.

E. *cæspitosa;* caulibus abbreviatis basi foliosis, foliis subradicalibus segmentis linearidilatatis cuneatis, pedunculis elongatis erectis, cyatho tubuloso limbo subnullo, calyce apice attenuato longe acuminato.

Flowers yellow, considerably smaller than E. crocea and californica.

E. *tenuifolia;* caulibus abbreviatis basi foliosis, foliis subradicalibus segmentis lineari-subulatis, pedunculis elongatis erectis, cyatho tubuloso limbo brevissimo, calyce apice obtusiusculo acuminato.

Stature and flowers of E. cœspitosa, but easily distinguished by its very finely cut leaves and by the form of the calyx.

E. *hypecoides;* caulibus elongatis ramosis foliosis foliorum segmentis breviter linearicuneatis pedunculi appendice tubuloso limbo subnullo calyce apice breviter acuminato.

Habit nearly that of E. californica; but the leaves are much smaller and the flowers not one third the size. It bears much resemblance to Hypecoum grandiflorum.

Meconopsis.

The dried collection contains two species of this genus, one of which was raised in the garden, but died before it could be determined or drawn. As however a small quantity of seed has been saved, it is probably not lost to us; and I therefore give here the botanical characters of both of them.

M. *heterophylla;* foliis paucis remotis pinnatisectis segmentis inferiorum ovatis subincisis subpetiolulatis superiorum linearibus integerrimis subconfluentibus, capsulis lævibus 5-6 valvibus.

M. *crassifolia;* caule basi folioso foliis crassiusculis glaucis pinnatirectis segmentis inciso-lobatis margine revoluto foliorum inferiorum ovato-cuneatis superiorum lineari cuneatis capsulis lævibus.

These species belong to the section Meconopsis of De Candolle. The flowers of both are of an orange red, about the size of those of

1. *Cyclolethra pulchella.* 2. *Lupinus nanus.* 3. *Cyclolethra alba?*

Miss Drake. delt.

J. Clark. sc.

Papaver Argemone; they do not appear likely to be so ornamental as many others of the poppy tribe now in cultivation.

Limnanthes Douglasii.

This plant has been already described by Mr. Brown,* from dried specimens, as the type of a new natural order, to which he has given the name of Limnantheæ. It has since then flowered in the Society's garden, and proves to be equally interesting in a horticultural point of view from the elegance of its flowers and foliage. It is a prostrate pale green annual, with finely divided, rather succulent leaves, and white striated petals with a yellow base. The flowers are about the size of Campanula rotundifolia, are slightly fragrant, and very pretty. From the habit of this plant it seems to require a damp and shady situation, where it will probably remain in flower for a month or six weeks. It is propagated by seeds, which are produced in tolerable plenty.

Lupinus nanus. (Plate 14. fig. 2.)

L. nanus, *Dougl. MSS.*

L. annuus humilis pilosiusculus, caulibus decumbentibus parum ramosis, foliis paucis, foliolis 5-7 spathulatis, floribus subverticillatis racemosis, calycibus sericeo-lanatis inappendiculatis, labio superiore bifido inferiore longiore integro, alis vexillo vix longioribus.

The leaves of this charming little Lupin are very much like those of L. bicolor, of which the cultivation has been abandoned on account of the small size of its flowers and consequent want of beauty. The flowers of L. nanus, are about the size of the old annual Lupin, but more elegant from their number and variegated colours. It has blossomed very freely, and produced a sufficient quantity of seed to be partially distributed in the present season.

* London and Edinburgh Philosophical Magazine, July, 1833.

Its diffuse habit and dwarf stature render it extremely well adapted for forming patches in a flower garden.

Lupinus densiflorus.

L. annuus, caulibus adscendentibus basi foliosis foliisque subsericeo-pilosis, foliolis oblongo-spathulatis, verticillis numerosis approximatis 6-10 floris, pedicellis ebracteatis, calycis labiis subintegris superiore membranaceo inferiore piloso duplo longiore, leguminibus villosis dispermis.

The flowers, which grow in distinct whorls, are white, delicately stained with pink; they are also a little speckled at the base of the vexillum. The leaves are closely clustered together, are covered with fine soft hairs, and each has about nine narrow divisions. The stem does not grow above six or seven inches high.

This species has hitherto produced its seeds, which are of an olive green, smooth, and minutely dotted with black, in very small quantity. It is probable that it requires shade.

Lupinus albifrons.

L. fruticosus, caulibus decumbentibus foliisque argenteo-sericeis, foliolis obovato-oblongis basi angustatis, floribus verticillatis bracteolatis, calycis labio superiore bifido inferiore integro.

Very near L. ornatus from which it differs in its shrubby habit, short leaves, long and slender racemes, and rather smaller deep blue flowers; although not so handsome as L. ornatus, it is well deserving of cultivation. The seeds are of a light chesnut colour, marbled with brown.

It is perhaps not hardy enough to bear the rigour of our winters without protection; but it seems to thrive in a glass pit, and would probably succeed in the front of a south wall, covered from wet in winter. It does not seed freely, nor does it strike readily from cuttings.

Calochortus splendens.

2. Tulipa lata.

3. Calochortus venustus.

Drake. delt

Lupinus leptophyllus.

L. annuus, caulibus erectis subsimplicibus patentim pilosis, foliis linearibus utrinque angustatis pilosis vix sericeis, floribus sparsis approximatis, bracteis ante anthesin subcomosis, pedicellis ebracteolatis, calycis labio superiore bifido inferiore longiore subintegro.

This species is remarkable for its narrow leaves and hairy surface. It is about a foot high: the spike of flowers is elegantly coloured with bluish lilac, and there is a deep crimson stain in the middle of the standard. The spike is covered with flowers in an irregular manner, and crowned by the long linear bracts of the unexpanded blossoms. It is not so pretty a species as many others of this generally beautiful genus; it has hitherto produced but a very few seeds, which are pale brown, mottled with a darker shade and unusually small for a Lupin. It probably requires shade.

Lupinus hirsutissimus.

L. annuus, undique pilis longis rigidis patentibus hirsutissimus, caule humili suberecto, foliis paucis foliolis obovatis mucronulatis, floribus alternis, pedicellis ebracteolatis, labiis calycinis subæqualibus superiore bifido inferiore integro.

A small annual of little interest except to the botanist. The leaves are spotted with pale green, like those of a Pulmonaria; the flowers are reddish purple, and the seeds, which are small, are so closely covered with dark brown marbling, that the olive green ground colour can hardly be seen. It has hitherto grown very indifferently, and probably requires a rich moist soil in a shady place.

Calochortus splendens. *Dougl. MSS.* (Plate 15. fig. 1.)

C. caule 3-5-floro, sepalis revolutis, petalis intus sparse pilosis in parte superiori glabris basi maculatis extus ecostatis.

This elegant species has very much the appearance of C. macrocarpus, figured Vol. 7, Pl. 8, of these Transactions. It is, perhaps, rather less branched, and the leaves shorter. The petals are paler

coloured, and have but a small dark spot at their base. The hairs of the inner surface are of the same colour as the petal, and there is neither the transverse brown streak on the inside, nor the green rib on the outside of C. macrocarpus. The roots transmitted by Mr. Douglas have grown freely, and many have already been distributed.

Calochortus venustus. *Dougl. MSS.* (Plate 15, fig. 3.)

C. caule paucifolio sub-bifloro sepalis erectis, petalis præter fasciculum pilorum glabris basi rubris et versus apicem macula rubra notatis.

This is again a species resembling C. macrocarpus in the size of the flowers. It differs from C. splendens by the straight sepals marked with a dark spot at their base, from C. macrocarpus by the absence of the green rib on the petals, from both, by their colour which is a pure white, with the lower part marked in streaks of deep red on a yellow ground and with a spot near the extremity of each petal, much resembling a drop of blood. Like the preceding one it is a very handsome species, and has been raised in a sufficient quantity for distribution.

Cyclobothra pulchella. (Plate 14. fig. 1.)

Calochortus pulchellus, *Dougl. MSS.*

C. umbellis 2-3-floris, pedunculis bracteis brevioribus, floribus globosis, petalis ovatis obtusis serrulato-fimbriatis foveâ valde excavatâ extus callosâ sepalis ovato-lanceolatis acuminatis vix brevioribus.

The Calochorti of Douglas with pendulous flowers, including the C. elegans of Pursh, figured Vol. 7, Pl. 2, of these Transactions, belong certainly to the genus Cyclobothra established by Sweet, (British Flower Garden 3, t. 173,) for the Fritillaria barbata of Kunth, and are nearer allied to Fritillaria than to Calochortus, but sufficiently distinct from either. Cyclobothra pulchella is about a foot in height, much branched, each branch terminating with an

umbel of two or three pendulous flowers issuing from the base of a green leaf-like bract, longer than the peduncle. The flowers are of a bright yellow, the sepals of a greenish hue and ovate lanceolate form ; the petals somewhat longer, very much broader, with a very deep nectariferous pit, of a rich yellow colour placed a little below the centre. The margins of this pit are clothed with long and thick hairs, the petal below it is entirely smooth, above it slightly covered with scattered hairs, and bordered with a beautiful but delicate fringe.

This plant produces seeds in great abundance, and will probably become as common as a Fritillary.

Cyclobothra alba. (Plate 14, fig. 3.)

Calochortus albus, *Dougl. MSS.*

C. umbella 2-3-flora, pedunculis bracteis brevioribus, floribus oblongis inflatis, petalis ovatis obtusissimis margine nudiusculis foveâ leviter impressâ sepalis ovato-lanceolatis duplo longioribus.

This species resembles very much the preceding one, but the flowers are larger, the petals both longer and broader, of a whitish colour, marked towards the centre with a shallow pit, covered with inflected hairs, glabrous below it, above it slightly covered with scattered hairs, and almost naked at the border, where the few hairs that straggle so far are turned inwards, and by no means form a fringe as is the case in C. pulchella.

Triteleia laxa. (Plate 15, fig. 2.)

T. foliis linearibus glaucis scapo longioribus, involucro triphyllo patente membranaceo, umbella laxa 7-8 flora.

A very handsome plant, the scape of which is from a foot to eighteen inches high. Its flowers are about the size of those of Brodiæa grandiflora and of the same deep blue colour. They grow in a lax umbel, but notwithstanding the length of their stalks stand

nearly erect; the scape is, however, apt to be procumbent if not supported. It seeds freely and will soon be very common.

All the species of Calochortus, Cyclobothra and Triteleia are probably hardy; they seem only to require a shady situation and a warm and light soil which is effectually protected from wet in winter. But as they are all at present extremely rare, they have hitherto been treated in the garden like half hardy bulbs; that is to say, have been taken up as soon as their leaves have died, and kept dry till the roots have again begun to shoot.

Some Polemoniaceæ, and a few other plants raised from the same seeds, will be the subject of a second Report, which will shortly be laid before the Society.

LIII. *On the Culture of the Potatoe. By* Thomas Andrew Knight, *Esq. F. R. S. President.*

Read March 19, 1833.

I have so often addressed communications to this Society upon the culture of the Potatoe, that many of its Members may not improbably think, that more than a sufficient extent of the pages of our Transactions have been already devoted to that subject. It would certainly not be difficult to find one more entertaining; but if the farmer can be made to derive such information from our Transactions, as will enable him to cause the same space of ground, which now affords one bushel of Potatoes to afford two, and the peasant to cause the half acre, which now supplies his table with Potatoes, to afford him in addition a considerable weight of animal food, few subjects can be more important; and, therefore, conceiving myself to be prepared to communicate some further useful information, I venture to address another communication upon the same subject.

The fact that every variety of Potatoe when it has been long propagated from parts of its tuberous roots becomes less productive, is, I believe, unquestionable. I have often witnessed the progressive decay of vigour and the different effects of the influence of age, upon many different varieties. The quality of some has remained perfectly good, after the produce in quantity has become highly defective; whilst in others that has disappeared with the vigour of the plant. I brought to this place a single tuber of Lankmann's Potatoe soon after that was imported: the produce of that variety was then, and continued during some suc-

cessive years, very great; but its vigour was gradually diminished; and in the last year its produce was at least one third (more than seven tons per acre) less than I obtained from the same soil, and under, in every respect, the same management, from other varieties of nearly similar habits, but which had recently sprung from seed. The propagation of expended varieties, therefore, appears to me to be one of the causes why the crops of Potatoes generally have been found so much less than those which I have stated to have been produced here. I have received letters within a few months from persons in different parts of the kingdom, informing me that they have been unable to obtain by any mode of culture above two hundred and fifty, or three hundred bushels of Potatoes from an acre of good and well-manured ground. I have in answer desired to know the age of the varieties cultivated; but upon that point, I have uniformly found my correspondents totally uninformed; communicating to me, however, the important intelligence that the same varieties bore more abundantly at a former period, and often that the quality of the former produce was superior. When I first stated, in a former communication, that I had obtained a produce equivalent to six hundred and seventy bushels of eighty pounds per acre, I found some difficulty in obtaining credit for the accuracy of my statement, though I then felt perfectly confident that by first obtaining varieties better adapted to my purpose, I should be able to raise much heavier crops; and the following statement, in support of which I am prepared to adduce the most unquestionable evidence, will prove that my confidence was perfectly well founded.

I planted in my garden in the last season, some tubers of a variety of Potatoe of very early habits, but possessing more vigour of growth than is usually seen in such varieties. The soil in which they were planted was in good condition, but not richer than the soils of gardens usually are, and the manure which it had received, consisted

chiefly of decayed oak leaves, which I prefer to other manures; because it never communicates a strong taste, or flavour, to any vegetable. No previous preparation was given to the soil, and the spot, where the plantation was made, was not fixed upon till the day of planting; and no manure of any kind was then given. Owing to the variety being of a very excitable habit, I planted the tubers at least nine inches deep in the soil, and I subsequently raised the mould in ridges three inches high to prevent the young plants sustaining injury from frost; but no subsequent moulding was given. I anticipated from the previous produce of the variety, which I had raised by cross breeding from two early varieties in 1830, a very extraordinary crop; and I therefore invited several gardeners and farmers to witness the amount of it; and I procured the attendance of the two most eminent agriculturists of the vicinity, who were tenants to other gentlemen. The external rows (two deep), and the external plants at the ends of all the remaining rows, were taken away, and the produce of the interior part of the plantation was alone selected; and that was pronounced to be fully equivalent to nine hundred and sixty-four bushels, and forty-three pounds, or 34 tons, 8 cwt. 107lbs. per statute acre. Still larger crops may, I feel satisfied, be obtained, and my opinion is, that more than a thousand bushels of Potatoes may, and will be, obtained from an acre of ground.

An opinion is, I believe, generally prevalent, that varieties of Potatoes of very high and luxuriant growth, are capable of affording per acre the greatest weight of produce: but this is certainly erroneous. Such will grow in poorer soil, and, requiring wider intervals between the rows, are better calculated for culture with the plough; and therefore, perhaps, their produce may be raised at as little, or less cost, per bushel, though that is, I think, very questionable. Much time and much labour of the plant, must be expended in raising the nutriment absorbed from the soil into the

leaves upon the top of a very tall stem, and down again to the roots, and tubers.

The Potatoes, in the extraordinary crop of which I have above spoken, were not washed, and therefore a deduction must be made for a portion of soil which adhered to them: but that was small, owing to the dryness, and nature of the soil. Supposing a deduction of one hundred and sixty-four bushels be made in the above-mentioned account, and to afford Potatoes sufficient to plant the acre of ground again, eight hundred bushels would still remain, and these, if judiciously given to proper animals, would certainly give twelve hundred pounds of animal food. For this purpose early varieties of Potatoes possess great advantages; because all our domesticated animals thrive most on Potatoes after these have begun to germinate: and if those of early, and of course of very excitable habits, be taken up and collected into heaps, as soon as they have acquired maturity, they will germinate in autumn, and be fit for use without being boiled, through the winter. Potatoes, of such varieties, are, however, wholly unfit for human food, late in the Spring; and for such purpose those of later, and less excitable habits must be cultivated. Of such kinds in the last season, which was not favourable owing to the plants having suffered injury from drought, I obtained a produce varying from twenty to twenty-four tons per acre, the soil being naturally light and poor, and not more highly manured than would have been necessary for a crop of Swedish Turnips.

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It is likewise necessary, on this occasion, to remark, that it is an established rule of this Society, to which they will always adhere, never to give their opinion, as a body, upon any subject, either of Nature or Art, that comes before them. And therefore the thanks which are proposed from the Chair, to be given to the Authors of such Papers as are read at the General Meetings, or to the Persons who send fruits, or other vegetable productions, or exhibit Inventions of various kinds to the Society, are to be considered in no other light than as a matter of civility, in return for the respect shewn to the Society by these communications.

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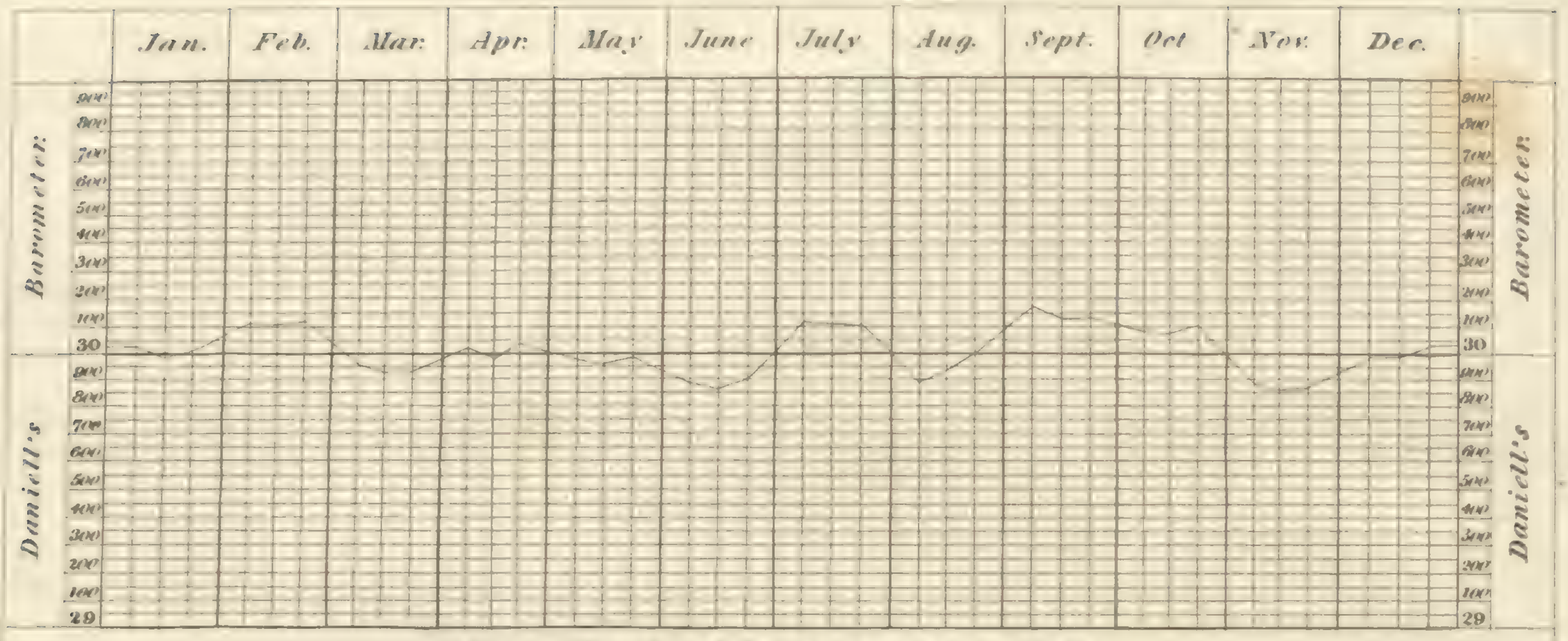
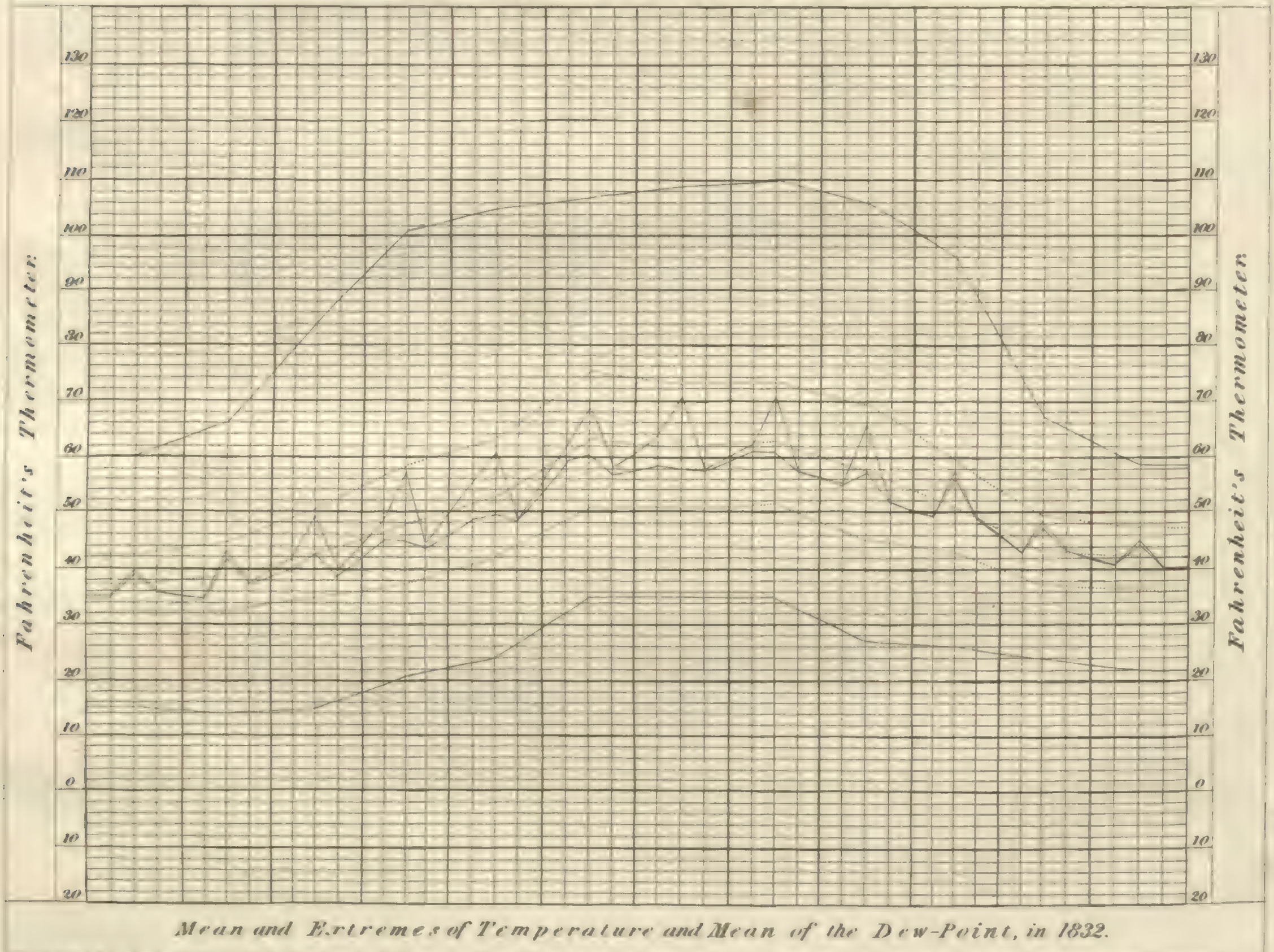
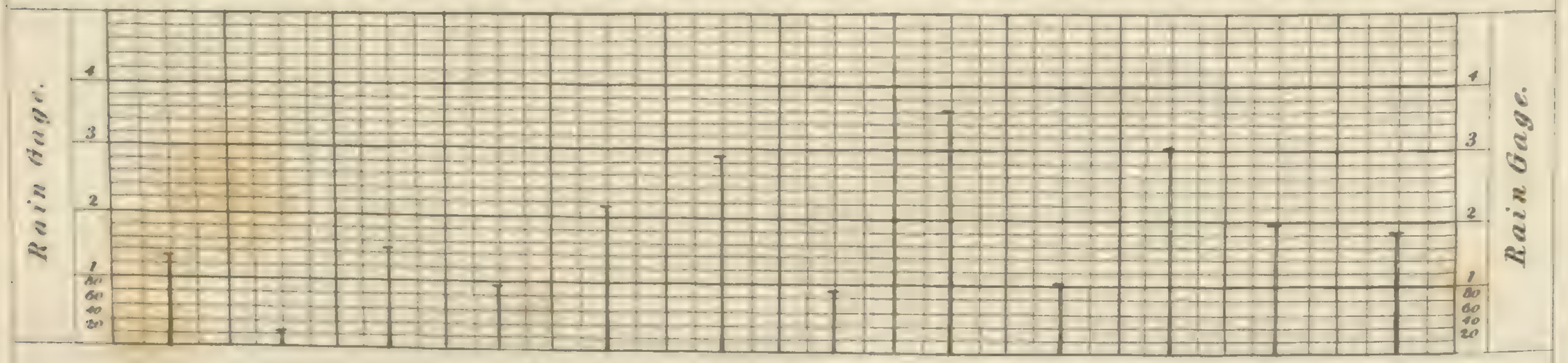


Mean Height of the Barometer, in 1832.



Mean and Extremes of Temperature and Mean of the Dew-Point, in 1832.



Monthly depth of Rain, in 1832.

LIV. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year* 1832. *By Mr.* Robert Thompson.

No alteration has taken place in the manner of keeping this Journal.

JANUARY.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	30.273	25	25	—	Frosty and Foggy	30.233	28	28	—	Foggy	30.175	25	25	—	Foggy
M.	2	—.031	26	26	—	Ditto	29.956	31	31	—	Ditto	29.883	31	31	—	Ditto
● T.	3	29.881	29	29	—	Frosty	—.881	33	33	—	Fine	—.869	24	24	—	Ditto
W.	4	—.759	26	26	—	Foggy	—.723	32	32	—	Dense Fog	—.705	28	28	—	Clear
Th.	5	—.703	29	29	—	Overcast	—.681	32	30	2	Overcast	—.657	34	34	—	Hazy
F.	6	—.580	35	35	—	Hazy	—.503	38	38	—	Hazy	—.493	37	37	—	Foggy
S.	7	—.406	36	36	—	Ditto	—.379	41	41	—	Rather Foggy	—.399	39	39	—	Rain
S.	8	—.431	36	36	—	Foggy	—.422	40	40	—	Foggy	—.470	39	39	—	Foggy
M.	9	—.532	40	40	—	Ditto	—.480	44	44	—	Hazy	—.420	48	48	—	Rain
T.	10	—.642	45	45	—	Mild	—.694	50	50	—	Rain	—.802	47	47	—	Damp
☾ W.	11	—.818	44	44	—	Damp	—.567	47	47	—	Heavy Ditto	—.745	42	42	—	Clear
Th.	12	—.850	41	41	—	Cloudy	—.696	47	47	—	Fine	—.593	42	42	—	Rain
F.	13	—.605	39	39	—	Overcast	—.632	41	41	—	Rain	—.913	36	36	—	Showery
S.	14	30.179	32	31	1	Clear & Frosty	30.199	37	36	1	Clear and Fine	30.345	36	36	—	Slight Showers
S.	15	—.502	28	28	—	Foggy	—.504	33	33	—	Foggy	—.500	28	28	—	Foggy
M.	16	—.509	24	24	—	Slightly Ditto	—.470	34	34	—	Fine	—.439	34	34	—	Overcast
○ T.	17	—.377	36	36	—	Foggy	—.291	40	40	—	Ditto	—.366	39	39	—	Foggy
W.	18	—.395	36	36	—	Ditto	—.403	40	40	—	Ditto	—.399	30	30	—	Ditto
Th.	19	—.371	35	35	—	Thick Fog	—.353	35	35	—	Foggy	—.306	33	33	—	Very Ditto
F.	20	—.213	31	31	—	Ditto	—.173	39	39	—	Ditto	—.138	30	30	—	Clear
S.	21	—.229	36	36	—	Ditto	—.231	45	45	—	Ditto	—.289	41	41	—	Hazy
S.	22	—.275	41	41	—	Overcast	—.265	44	44	—	Cloudy	—.281	42	42	—	Overcast
M.	23	—.334	40	40	—	Rain	—.330	45	45	—	Dull	—.363	31	31	—	Frosty
☾ T.	24	—.258	32	32	—	Fine	—.198	45	45	—	Very Fine	—.038	43	43	—	Cloudy
W.	25	29.854	45	45	—	Rain	29.876	49	48	1	Fine	29.984	33	33	—	Clear
Th.	26	—.890	29	29	—	Foggy	—.847	41	41	—	Ditto	—.849	36	36	—	Foggy
F.	27	—.967	33	33	—	Snow	30.045	36	36	—	Rain	30.201	32	32	—	Clear
S.	28	30.288	28	27	1	Clear	—.272	36	31	5	Fine	—.227	36	36	—	Overcast
S.	29	—.232	40	40	—	Drizzly	—.297	45	45	—	Drizzly	—.395	40	40	—	Hazy
M.	30	—.354	38	38	—	Overcast	—.267	45	45	—	Cloudy	—.222	40	40	—	Overcast
T.	31	—.116	39	38	1	Ditto	—.015	46	40	6	Fine	29.844	38	36	2	Ditto
		30.027	34.67	34.58	.09		29.996	39.96	39.48	.48		30.010	35.93	35.87	.06	

JANUARY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	33	23	33	—15	SW	Little			The mean temperature of this month was rather above the average. The quantity of rain was scarcely the usual amount. Dense fogs were prevalent, particularly between the 15th and 23rd, during which period there was, however, no rain; the barometer standing high. The atmosphere, except in a very few instances, was completely saturated with moisture in a remarkable degree. The first five days and nights were frosty, and some snow fell on the 27th, but there was no continued frosty weather throughout the month.
2	36	28	39	20	S	Ditto			
3	39	—22	48	19	NW	Ditto			
4	35	26	36	18	SE	Ditto			
5	38	28	39	26	E	Ditto	.01		
6	41	36	41	33	——	Ditto			
7	44	36	44	34	——	Ditto	.13		
8	43	36	43	35	——	Ditto			
9	49	40	49	39	——	Ditto	.14		
10	+51	44	58	40	S	Ditto	.05		
11	50	41	57	35	——	Ditto	.29		
12	47	38	56	35	SW	Ditto	.36		
13	41	31	43	24	N	Ditto	.04		
14	39	26	54	19	——	Ditto			
15	37	23	45	16	SW	Ditto			
16	38	31	49	30	——	Ditto			
17	41	31	50	22	SE	Ditto			
18	44	28	55	26	W	Ditto			
19	34	29	37	28	S	Ditto			
20	41	28	44	21	SE	Ditto			
21	45	38	41	35	S	Ditto			
22	41	40	48	38	——	Ditto			
23	43	27	48	18	——	Ditto			
24	49	41	+60	39	——	Ditto	.11		
25	49	27	58	18	SW	Ditto	.01		
26	45	33	58	30	——	Ditto	.03		
27	38	27	38	19	NE	Ditto			
28	40	32	46	29	SW	Ditto	.15		
29	47	36	49	32	NW	Ditto			
30	44	38	48	35	SW	Ditto			
31	47	34	59	29	S	Ditto			
	42.22	32.19	47.51	27.64			1.32		

Mean Pressure from the 3 daily observations 30.011 inches.
—— Temperature ..... Ditto ..... 36°.85
—— Dew Point ..... Ditto ..... 36°.64
—— Degree of Dryness ... Ditto ..... .21
—— Degree of Moisture .. Ditto ..... .999
—— Force of Vapour .... Ditto ..... .253 inch.
Least observed degree of Moisture ..... .838
Maximum Temperature in the Shade ..... 51°
Minimum Temperature in ditto ..... 22°
Maximum Temperature in the Sun ..... 60°
Minimum of Terrestrial Radiation ..... 15°
Mean Temperature of external Air ..... 37°.20

WINDS.

North	2 days.	N. East	1 days.
South	9 ..	N. West	2 ..
East	5 ..	S. East	3 ..
West	1 ..	S. West	8 ..

31 days.

Amount of Rain ..... 1.32 inches.

FEBRUARY.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
● W.	1	29.517	35	32	3	Cloudy & Cool	29.382	42	40	2	Overcast	29.227	44	44	—	Cloudy
Th.	2	—.258	44	44	—	Fine	—.242	45	45	—	Rain	—.231	40	39	1	Fine
F.	3	—.536	32	32	—	Hoar Frost	—.686	43	40	3	Fine	—.896	42	42	—	Clear
S	4	—.842	37	37	—	Windy with Rain	—.912	54	54	—	Cloudy	—.997	50	50	—	Slight Rain
S.	5	30.044	52	52	—	Cloudy	30.031	53	53	—	Ditto	30.004	51	50	1	Cloudy
M.	6	29.834	47	47	—	Fine	29.720	50	50	—	Do. with slight Rain	29.721	44	44	—	Overcast
T.	7	—.957	37	37	—	Ditto	30.149	51	49	2	Fine	30.250	30	30	—	Frosty
W.	8	30.342	31	31	—	Frosty & Foggy	—.284	46	46	—	Ditto	—.444	42	40	2	Fine
☽ Th.	9	—.402	44	44	—	Hazy	—.412	50	50	—	Rain	—.528	36	36	—	Clear
F.	10	—.591	31	31	—	Ditto	—.564	43	43	—	Fine	—.504	35	35	—	Cloudy
S.	11	—.391	35	34	1	Fine	—.317	44	40	4	Cloudy & Cold	—.240	37	36	1	Fine
S.	12	—.188	37	37	—	Clear	—.144	40	40	—	Drizzly	—.185	37	37	—	Drizzly
M.	13	—.120	37	37	—	Fine, Overcast	—.166	40	40	—	Hazy & Cold	—.157	36	36	—	Overcast
T.	14	—.109	36	36	—	Overcast	—.075	35	32	3	Fine	—.101	34	33	1	Slightly Do.
W.	15	—.109	27	27	—	Cloudy & Cold	—.135	36	36	—	Cloudy & Cold	—.018	28	28	—	Frosty, Dense Fog
○ Th.	16	29.901	30	30	—	Foggy	29.812	39	39	—	Overcast	29.701	35	35	—	Fine
F.	17	—.763	36	36	—	Drizzly	—.864	45	45	—	Cloudy	30.042	39	39	—	Ditto
S.	18	30.237	39	39	—	Fine	30.270	44	43	1	Fine	—.354	41	40	1	Cloudy
S.	19	—.358	36	33	3	Fine, but Cold	—.316	40	40	—	Cloudy	—.314	28	28	—	Frosty
M.	20	—.379	28	28	—	Cloudy & Cold	—.363	43	39	4	Fine	—.341	32	32	—	Fine
T.	21	—.280	35	35	—	Rather Foggy	—.252	45	42	3	Ditto	—.278	32	32	—	Foggy
W.	22	—.385	31	31	—	Dense Fog	—.397	39	39	—	Foggy	—.425	33	33	—	Dense Fog
☾ Th.	23	—.427	31	31	—	Ditto	—.381	38	38	—	Fine	—.314	34	34	—	Ditto
F.	24	—.203	30	30	—	Ditto	—.121	37	37	—	Foggy	—.018	28	28	—	Ditto
S.	25	—.085	30	30	—	Ditto	—.159	38	38	—	Ditto	—.242	34	34	—	Foggy
S.	26	—.246	35	35	—	Hazy	—.164	43	40	3	Cloudy	—.159	37	37	—	Ditto
M.	27	—.167	36	36	—	Foggy	—.176	46	43	3	Hazy	—.213	40	40	—	Overcast
T.	28	— 244	37	35	2	Overcast	—.246	37	37	—	Cold and Overcast	—.244	36	36	—	Ditto
W.	29	—.246	36	32	4	Ditto	—.242	42	32	10	Overcast	—.290	36	35	1	Ditto
		30.109	35.58	35.13	.44		30.102	43.03	41.72	1.31		30.118	36.93	36.65	.27	

FEBRUARY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	48	36	51	34	S	Little		A very small quantity of rain fell in the course of this month, the amount being little more than ½ of an inch; none fell after the 16th. The atmosphere was however exceedingly damp, and very dense fogs were prevalent in the latter half of the month, accompanied with a high state of the barometer. As regards fogs and a damp state of the atmosphere, this month and the preceding have even exceeded that usually experienced in November and December. The wind was rarely from a **westerly direction.**
2	49	31	59	26	——	Ditto		
3	52	37	59	34	SW	Ditto	.01	
4	+54	47	63	44	——	Ditto	.01	
5	54	45	60	41	S	Ditto		
6	52	36	60	30	——	Brisk	.05	
7	48	26	60	18	——	Little		
8	51	40	52	35	——	Ditto	.02	
9	51	28	62	22	W	Ditto		
10	46	30	65	26	NW	Ditto	.10	
11	44	33	56	28	N	Ditto	.01	
12	42	36	53	35	——	Ditto	.02	
13	39	35	40	33	E	Ditto		
14	37	—24	43	—14	NE	Ditto		
15	35	25	44	21	E	Ditto		
16	40	31	44	30	SE	Ditto	.01	
17	45	36	55	32	N	Ditto		
18	47	35	+66	31	——	Ditto		
19	40	26	55	15	——	Brisk		
20	46	30	64	22	SE	Little		
21	49	29	64	27	——	Ditto		
22	40	29	64	25	N	Ditto		
23	46	28	58	27	SW	Ditto		
24	39	24	41	21	SE	Ditto		
25	39	31	46	29	E	Ditto		
26	43	33	50	24	NE	Ditto		
27	40	34	42	32	——	Ditto		
28	40	33	42	32	——	Ditto		
29	40	34	42	31	——	Ditto		
	44.69	32.48	53.79	28.24			.23	

Mean Pressure from the 3 daily observations 30.109 inches.
—— Temperature ..... Ditto ..... 38°.51
—— Dew Point ..... Ditto ..... 37°.83
—— Degree of Dryness .... Ditto ..... .67
—— Degree of Moisture .. Ditto ..... .973
—— Force of Vapour .... Ditto ..... .262 inch.
Least observed degree of Moisture ..... .853
Maximum Temperature in Shade ..... 54°
Minimum Temperature in ditto ..... 24°
Maximum Temperature in Sun ..... 66°
Minimum of Terrestrial Radiation ..... 14°
Mean Temperature of External Air ..... 38°.58

Winds.

North	6 days.	N. East	5 days
South	6 ..	S. East	4 ..
East	3 ..	N. West	1 ..
West	1 ..	S. West	3 ..

29 days.

Amount of Rain ..... 0.23 inch.

MARCH.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	30.323	38	35	3	Overcast	30.331	43	43	—	Slight Rain	30.348	40	40	—	Overcast
● F.	2	—.359	42	42	—	Fine	—.359	50	48	2	Fine	—.380	39	39	—	Ditto
S.	3	—.352	38	37	1	Overcast	—.283	46	40	6	Cloudy	—.210	39	39	—	Rain
S.	4	—.033	45	45	—	Rain	29.889	48	48	—	Drizzly	29.767	44	44	—	Ditto
M.	5	29.836	42	42	—	Fine	—.818	48	39	9	Fine	30.080	39	35	4	Clear
T.	6	—.779	43	43	—	Cloudy	—.534	44	44	—	Stormy & Wet	29.366	44	44	—	Cloudy
W.	7	—.426	40	40	—	Fine	—.373	42	42	—	Rain	—.375	33	33	—	Drizzly
Th.	8	—.568	33	33	—	Foggy & Frosty	—.642	38	38	—	Cloudy & Cold	—.842	29	29	—	Clear & Frosty
☽ F.	9	30.083	32	32	—	Hoar Frost	30.158	47	38	9	Fine	30.336	31	31	—	Ditto
S.	10	—.441	30	30	—	Frosty	—.396	44	44	—	Ditto	—.342	30	30	—	Ditto
S.	11	—.246	32	32	—	Do. and Foggy	—.187	38	38	—	Ditto	—.139	36	36	—	Foggy
M.	12	—.079	36	36	—	Foggy	—.036	45	40	5	Ditto	—.006	35	35	—	Fine
T.	13	29.948	38	37	1	Overcast & Cold	29.896	46	41	5	Overcast	29.606	41	41	—	Ditto
W.	14	—.536	47	45	2	Fine	—.428	53	48	5	Fine	—.363	36	36	—	Rain
Th.	15	—.470	41	41	—	Heavy Rain	30.089	45	45	—	Cloudy	—.799	35	35	—	Clear
○ F.	16	—.850	34	34	—	Foggy	29.728	46	46	—	Rain	—.625	46	46	—	Rain
S.	17	—.455	51	51	—	Stormy & Wet	—.373	52	44	8	Fine	—.572	39	37	2	Clear and Windy
S.	18	—.562	44	43	1	Clear	—.534	50	42	8	Ditto	—.677	44	44	—	Stormy Showers
M.	19	—.895	43	43	—	Overcast & Cold	—.837	51	45	6	Cloudy & Cold	—.749	45	45	—	Fine
T.	20	—.586	46	44	2	Windy	—.701	50	38	12	Clear & Windy	—.983	39	35	4	Clear
W.	21	30.058	49	49	—	Overcast	30.130	58	52	6	Cloudy	30.171	45	45	—	Fine
Th.	22	—.183	48	48	—	Ditto	—.151	55	43	12	Do. and Fine	—.104	48	48	—	Overcast
F.	23	29.993	50	49	1	Fine	29.914	53	51	2	Ditto [Showers	29.882	39	39	—	Clearing
☾ S.	24	—.882	39	35	4	Ditto & Cold	—.887	43	39	4	Windy with	30.009	38	38	—	Cold & Showery
S.	25	30.188	41	37	4	Ditto	30.227	48	38	10	Fine	—.269	33	33	—	Cold and Fine
M.	26	—.222	43	43	—	Cold & Overcast	—.195	49	43	6	Cloudy & Cold	—.111	45	42	3	Ditto
T.	27	—.061	47	45	2	Fine	—.060	56	45	11	Fine	—.114	43	43	—	Clear
W.	28	—.134	44	35	9	Ditto	—.102	50	33	17	Ditto	—.078	33	32	1	Ditto
Th	29	—.034	41	33	8	Clear & Frosty	29.979	52	24	28	Very Dry	—.017	39	33	6	Very Clear
F.	30	—.034	43	42	1	Ditto & Fine	—.974	63	43	20	Ditto	29.936	42	42	—	Slightly Overcast
S.	31	29.866	43	42	1	Overcast	—.807	51	43	8	Overcast	—.785	46	46	—	Ditto
		29.951	41.38	40.09	1.29		29.936	48.51	42.09	6.42		29.936	39.19	38.54	0.64	

MARCH.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	42	36	46	29	S	Little	.03		The weather continued still damp and foggy for the greater part of the month. Although there was fully an average temperature maintained in this and the preceding month, yet, owing to the almost continual absence of Sun, vegetation advanced but slowly; towards the end the air had its usual dryness. The 29th was extremely dry, and vegetation exposed to its effects rather suffered more than from the cold of the preceding winter. This state of the atmosphere had its usual concomitants when occurring in Spring, viz. easterly winds, hot sun through the day, and frost at night, with a great loss of heat by radiation.
2	48	34	63	27	——	Ditto			
3	45	37	48	36	——	Brisk	.06		
4	49	39	51	34	SE	Little	.23		
5	50	29	65	19	N W	Brisk			
6	49	29	49	27	S	Strong	.26		
7	46	29	57	20	——	Little	.10		
8	41	27	51	19	NE	Ditto	.02		
9	49	—25	71	16	——	Ditto			
10	49	27	72	18	SE	Ditto			
11	47	34	68	30	S	Ditto			
12	51	33	71	29	SE	Ditto			
13	48	37	54	33	S	Ditto	.01		
14	51	36	63	34	——	Brisk	.36		
15	45	29	62	20	N	Little	.02		
16	52	44	53	42	SW	Brisk	.17		
17	54	39	68	34	W	Ditto	.05		
18	51	37	67	29	——	Ditto	.06		
19	51	44	59	39	——	Ditto	.02		
20	52	37	67	28	NW	Ditto			
21	57	41	73	36	W	Ditto			
22	+57	45	75	40	——	Ditto			
23	55	35	65	27	SW	Ditto	.07		
24	45	36	59	30	W	Strong	.04		
25	49	31	66	25	NE	Brisk			
26	53	37	77	30	N W	Little			
27	56	38	+84	32	N	Ditto			
28	51	26	74	—15	NE	Ditto			
29	55	33	71	26	E	Brisk			
30	54	39	72	36	——	Ditto			
31	52	40	72	36	NE	Little			
	50.11	34.93	64.29	28.90			1.50		

Mean Pressure from the 3 daily observations 29.941 inches.
—— Temperature ..... Ditto ..... 43°.02
—— Dew Point ..... Ditto ..... 40°.24
—— Degree of Dryness ... Ditto ..... 2°.78
—— Degree of Moisture .. Ditto ..... .892
—— Force of Vapour ..... Ditto ..... .282 inch.
Least observed degree of Moisture ..... .382
Maximum Temperature in the Shade .... 57°
Minimum Temperature in ditto ..... 25°
Maximum Temperature in the Sun ..... 84°
Minimum of Terrestrial Radiation ..... 15°
Mean Temperature of External Air ..... 42°.52

WINDS.

North	2 days.	N. East	5 days.
South	8 ..	S. East	3 ..
East	2 ..	N. West	3 ..
West	6 ..	S. West	2 ..

31 days.

Amount of Rain..... 1.50 inch.

APRIL.

1832.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
● S.	1	29.857	43	43	—	Overcast	29.893	53	38	15	Overcast, Fine	30.038	46	46	—	Overcast
M.	2	30.152	45	42	3	Fine	30.171	58	42	16	Very Fine	—.281	44	41	3	Clear
T.	3	—.432	48	48	—	Ditto	—.443	65	50	15	Ditto	—.510	44	44	—	Fine
W.	4	—.578	49	46	3	Light Haze	—.569	66	55	11	Ditto	—.557	50	50	—	Clear & Do.
Th.	5	—.510	54	51	3	Very Fine	—.461	68	52	16	Ditto	—.442	50	50	—	Ditto
F.	6	—.439	49	49	—	Overcast	—.406	59	49	10	Cloudy	—.385	45	45	—	Cloudy
S.	7	—.319	40	40	—	Slight Fog	—.239	53	48	5	Fine	—.195	40	40	—	Fine
☽ S.	8	—.190	47	45	2	Cold & Dry	—.179	54	35	19	Ditto	—.221	39	39	—	Ditto & Clear
M.	9	—.162	44	43	1	Overcast	—.242	55	47	8	Ditto	—.159	42	42	—	Ditto
T.	10	—.162	42	40	2	Ditto & Cold	—.225	53	45	8	Ditto	—.225	42	42	—	Ditto
W.	11	—.218	46	40	6	Clear & Fine	—.148	54	28	26	Very Dry	—.113	45	42	3	Ditto
Th.	12	29.992	44	44	—	Rain	29.973	51	41	10	Cloudy & Cool	29.990	45	42	3	Overcast
F.	13	—.955	47	46	1	Slight Haze, Fine	—.982	56	46	10	Fine	30.093	41	41	—	Clear & Fine
S.	14	30.176	45	45	—	Ditto	30.171	59	44	15	Ditto	—.193	49	42	7	Very Fine
○ S.	15	—.157	51	49	2	Fine	—.108	59	51	8	Ditto	—.087	49	49	—	Rain
M.	16	—.045	52	50	2	Ditto	—.032	59	45	14	Very Fine	—.069	42	42	—	Clear
T.	17	—.061	45	45	—	Overcast	—.033	54	45	9	Slight Haze	29.953	44	44	—	Fine
W.	18	29.786	49	46	3	Fine	29.664	61	44	17	Fine	—.526	48	48	—	Rain
Th.	19	—.657	51	49	2	Cloudy & Fine	—.745	50	50	—	Thunder Shower	—.889	44	44	—	Fine
F.	20	—.780	50	50	—	Rain	—.170	52	52	—	Rain	—.859	42	42	—	Showery
S.	21	30.109	49	46	3	Fine	30.172	58	38	20	Fine	30.217	48	48	—	Fine
S.	22	—.207	53	50	3	Very Fine	—.028	61	50	11	Ditto	29.980	49	47	2	Ditto
☾ M.	23	29.828	57	42	15	Ditto	29.764	65	43	22	Very Fine	—.736	52	51	1	Ditto
T.	24	—.762	47	47	—	Hazy	—.767	48	48	—	Rain	—.838	44	44	—	Rain
W.	25	—.898	45	45	—	Wet	—.821	54	45	9	Fine	—.928	44	40	4	Cloudy, Cold, Thunder Showers.
Th.	26	—.804	44	44	—	Stormy & Do.	—.811	43	43	—	Stormy & Wet	—.865	42	42	—	Showery
F.	27	—.902	49	48	1	Fine	—.898	50	50	—	Hail Showers	—.890	39	39	—	Clear
S.	28	—.791	43	42	1	Ditto, slight Frost	— 732	53	36	17	Fine	—.646	40	40	—	Ditto
S.	29	—.570	49	46	3	Fine	—.524	56	32	24	Ditto	—.451	44	40	4	Fine
● M.	30	— 315	53	48	5	Overcast & Cold	—.353	60	46	14	Fine	—.546	48	45	3	Overcast
		30.027	47.66	45.63	2.03		29.990	56.23	44.60	11.63		30.029	44.70	43.70	1.00	

APRIL.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	53	—30	72	—21	NW	Little			The general character of this month was cold and dry. Up to the 18th scarcely any rain fell, and altogether the quantity was only about half the usual amount. Thunder showers were frequent, but were unaccompanied with warmth. The 26th was stormy and wet, and hail showers fell on the 27th. Vegetation still advanced rather slowly, but it suffered no material check from frosts. The north and east winds were most prevalent.
2	61	33	78	24	SW	Ditto			
3	67	39	86	26	NE	Ditto			
4	70	37	92	30	——	Ditto			
5	+74	40	+101	34	E	Ditto			
6	56	36	80	34	NE	Ditto			
7	56	37	79	32	SE	Ditto			
8	56	37	79	32	E	Brisk			
9	58	35	78	28	——	Ditto			
10	57	35	79	29	——	Ditto			
11	56	34	77	32	——	Ditto	.02		
12	51	39	71	32	——	Ditto			
13	60	31	78	22	SE	Ditto			
14	60	35	72	26	——	Little			
15	59	46	72	43	SW	Ditto	.02		
16	63	32	85	25	——	Ditto			
17	62	36	82	28	N	Ditto			
18	61	44	76	41	S	Brisk	.17		
19	51	40	77	30	N	Little	.05		
20	56	37	74	29	SW	Brisk	.10		
21	60	37	81	28	W	Ditto			
22	61	45	80	37	——	Little			
23	65	45	85	40	S	Ditto			
24	52	42	69	40	N	Ditto	.33		
25	55	41	77	35	——	Brisk	.10		
26	50	40	66	35	——	Strong	.07		
27	56	31	80	22	——	Little	.08		
28	55	36	80	29	E	Ditto			
29	58	44	78	40	——	Brisk			
30	59	37	73	31	——	Little	.01		
	58.60	37.7	78.56	31.16			.95		

Mean Pressure from the 3 daily observations 30.015 inches.
—— Temperature ..... Ditto ..... 49°.53
—— Dew Point ..... Ditto ..... 44°.64
—— Degree of Dryness ... Ditto ..... 4°.88
—— Degree of Moisture .. Ditto ..... .850
—— Force of Vapour. .... Ditto .... . .335 inch.
Least observed degree of Moisture ..... .408
Maximum Temperature in Shade ..... 74°
Minimum Temperature in ditto ..... 30°
Maximum Temperature in the Sun ..... 101°
Minimum of Terrestrial Radiation ..... 21°
Mean Temperature of External Air..... 48°.15

WINDS.

North.....	6 days.	N. East.....	3 days.
South.....	2 ..	N West.....	1 ..
East.....	9 ..	S. East.....	3 ..
West.....	2 ..	S. West.....	4 ..

30 days.

Amount of Rain..... .95 inch.

MAY.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	29.460	48	48	—	Rain	29.356	49	49	—	Heavy Rain	29.411	45	45	—	Fine
W.	2	—.346	51	51	—	Ditto	—.356	61	61	—	Fine wth Showrs	—.422	51	51	—	Ditto
Th.	3	—.453	57	55	2	Fine	—.444	58	58	—	Rain	—.375	51	51	—	Strong Gale
F.	4	—.708	50	50	—	Cloudy	—.822	50	50	—	Ditto	30.071	40	40	—	Clear
S.	5	30.131	55	55	—	Overcast	30.097	57	57	—	Ditto	—.040	55	55	—	Rain
S.	6	—.053	59	59	—	Cloudy	—.064	66	66	—	Cloudy&Dull	—.046	54	54	—	Fine
) M.	7	29.913	58	58	—	Thunder Showrs	29.817	74	70	4	Sultry	29.909	58	58	—	Ditto
T.	8	30.022	56	55	1	Fine	30.041	64	52	12	Fine	30.165	48	47	1	Ditto
W.	9	—.302	47	35	12	Cold & Dry	—.321	50	39	11	Ditto	—.378	38	38	—	Ditto
Th.	10	—.427	46	32	14	Ditto	—.437	50	38	12	Bleak & Cold	—.413	50	43	7	Clear
F.	11	—.371	50	43	7	Fine	—.254	56	41	15	Cold & Dry	—.154	43	43	—	Cold Rain
S.	12	29.983	45	32	13	Cold & Dry	29.917	50	29	21	Ditto	29.773	40	39	1	Clear
S.	13	—.736	48	35	13	Ditto	—.739	50	37	13	Stormy, some Hail	—.826	40	40	—	Ditto
O M.	14	—.829	49	41	8	Ditto	—.808	53	38	15	Fine	—.785	44	44	—	Fine
T.	15	—.809	48	41	7	Cloudy	—.809	55	38	17	Ditto	—.861	40	40	—	Clear
W.	16	—.896	50	43	7	Ditto	—.865	56	40	16	Ditto	—.882	42	42	—	Slightly Overcast
Th.	17	—.897	43	43	—	Rain	—.887	54	54	—	Rain	30.027	44	44	—	Clearing
F.	18	30.111	52	40	12	Fine	30.132	60	45	15	Dul	—.219	41	41	—	Clear
S.	19	—.253	55	46	9	Ditto	—.234	67	45	22	Fine	—.238	43	43	—	Ditto
S.	20	—.212	57	52	5	Ditto	—.289	65	43	22	Ditto	—.201	51	49	2	Ditto
M.	21	—.239	59	52	7	Ditto	—.226	70	47	23	Ditto	—.227	54	54	—	Ditto
(T.	22	—.242	59	51	8	Cloudy	—.221	66	53	13	Cloudy	—.246	54	54	—	Ditto
W.	23	—.275	60	51	9	Fine	—.280	68	52	16	Fine	—.287	54	52	2	Ditto
Th.	24	—.300	62	57	5	Hazy, Sultry	—.276	73	59	14	Hazy&Sultry	—.256	54	54	—	Ditto
F.	25	—.213	62	59	3	Ditto	—.160	69	54	15	Ditto	—.100	59	59	—	Slightly Overcast
S.	26	—.004	64	58	6	Cloudy	29.988	69	61	8	Slightly Overcast	29.991	56	51	5	Cloudy
S.	27	—.200	61	44	17	Fine	—.987	63	42	21	Fine	—.948	52	52	—	Clear & Fine
M.	28	29.949	63	58	5	Ditto	—.924	73	52	21	Ditto	—.902	54	52	2	Very Fine
● T.	29	—.902	56	56	—	Rain	—.908	66	53	13	Clearing	—.938	54	54	—	Clear
W.	30	—.913	63	59	4	Dull	—.853	67	55	12	Fine	—.739	54	54	—	Rain
Th.	31	—.507	57	57	—	Rain	—.469	60	60	—	Rain	—.527	49	49	—	Clear
		29.982	54.51	48.90	5.61		29.967	60.93	49.61	11.32		29.979	48.78	48.13	.64	

MAY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	60	44	70	37	S	Little	.51	Considerable vicissitudes of temperature occurred during the first three weeks of this month, and vegetation was alternately excited and checked, the nights being often frosty. The frost however, was not so severe as to destroy at once the blossoms of such fruit trees as were exposed to it, but ultimately they became starved, in many instances, from an obstruction in the flow of sap, caused by the cold, and the dry state of the atmosphere. There was a very heavy peal of thunder about 4 A. M. on the morning of the 7th; and on the same day the Thermometer rose as high as 79° in the shade. The 13th was stormy with heavy showers of rain and some hail.
2	62	48	75	44	——	Brisk	.09	
3	55	45	56	41	——	Ditto	.08	
4	53	33	57	26	NE	Little	.10	
5	58	53	65	52	S	Brisk	.09	
6	68	51	78	50	——	Little	.06	
7	+79	45	99	39	——	Ditto		
8	67	37	91	27	W	Ditto		
9	51	36	73	28	——	Brisk		
10	51	—32	72	—24	N	Ditto		
11	57	39	78	36	NW	Ditto	.05	
12	53	37	81	33	——	Ditto		
13	55	34	78	25	N	Ditto	.03	
14	55	40	74	35	——	Little		
15	57	35	86	27	NE	Ditto	.23	
16	58	38	90	30	N	Ditto	.07	
17	55	41	70	34	NE	Ditto	.18	
18	63	35	84	26	SE	Ditto		
19	71	39	91	33	NE	Ditto		
20	66	44	89	40	E	Brisk		
21	73	48	93	40	NE	Little		
22	69	44	85	36	W	Brisk		
23	70	45	92	38	NW	Little		
24	73	46	92	40	E	Ditto		
25	73	48	100	41	SE	Ditto		
26	68	43	94	35	NE	Ditto		
27	69	41	+105	33	E	Ditto		
28	74	45	94	37	SE	Ditto		
29	71	45	90	37	——	Ditto	.32	
30	70	49	87	48	SW	Ditto	.22	
31	59	42	61	37	S	Ditto	.13	
	63.32	42	82.90	35.77			2.16	

Mean Pressure from the 3 daily observations 29.976 inches
—— Temperature .....Ditto..... 54°.74
—— Dew Point .....Ditto..... 48°.88
—— Degree of Dryness ....Ditto..... 5°.85
—— Degree of Moisture ...Ditto..... .819
—— Force of Vapour .....Ditto..... .386 inch.
Least observed degree of Moisture ..... .472
Maximum Temperature in Shade ..... 79°
Minimum Temperature in ditto..... 32°
Maximum Temperature in the Sun .... 105°
Minimum of Terrestrial Radiation ..... 24°
Mean Temperature of External Air ..... 52°.66

WINDS.

North.....	4 days.	N. East	6 days.
South.....	8 ..	S. East	3 ..
East	3 ..	N. West	3 ..
West.....	3 ..	S. West	1 ..

31 days.

Amount of Rain ..... 2.16 inches.

JUNE.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.599	57	57	—	Rain	29.636	61	61	—	Rain	29.754	48	48	—	Slight Fog
S.	2	—.859	58	56	2	Clear & Fine	—.847	68	49	19	Slightly Overcast	—.846	53	53	—	Hazy
S.	3	—.747	60	56	4	Fine	—.694	69	59	10	Fine	—.602	59	59	—	Overcast
M.	4	—.537	64	60	4	Cloudy	—.530	63	60	3	Overcast	—.514	56	56	—	Cloudy, Showers
☽ T.	5	—.488	62	58	4	Slightly Overcast	—.542	65	56	9	Ditto	—.552	53	53	—	Fine
W.	6	—.479	60	55	5	Hazy	—.463	62	58	4	Showery [Showers	—.521	54	54	—	Ditto
Th.	7	—.573	60	58	2	Cloudy & Dull	—.596	57	57	—	Heavy Thunder	—.697	53	53	—	Cloudy & Damp
F.	8	—.697	59	59	—	Rain	—.614	67	61	6	Cloudy, but Fine	—.799	55	55	—	Fine
S.	9	—.838	63	61	2	Cloudy	—.826	68	63	5	Light Clouds	—.868	51	51	—	Slight Fog
S.	10	—.894	65	63	2	Ditto	—.863	70	70	—	Showers	—.879	56	56	—	Overcast & Fine
M.	11	—.791	61	61	—	Rain	—.737	70	70	—	Rain	—.669	61	61	—	Ditto
T.	12	—.566	72	72	—	Sultry	—.527	73	70	3	Cloudy	—.468	61	61	—	Thunder Showers
● W.	13	—.525	68	65	3	Fine	—.514	70	63	7	Ditto	—.573	58	58	—	Fine
Th.	14	—.649	66	63	3	Cloudy	—.701	71	59	12	Ditto	—.825	57	56	1	Ditto
F.	15	—.946	65	59	6	Ditto	—.978	60	60	—	Showery	30.003	54	54	—	Ditto but Damp
S.	16	30.083	64	60	4	Slightly Overcast	30.074	72	58	14	Sultry	—.088	60	58	2	Cloudy
S.	17	—.090	68	63	5	Cloudy	—.029	76	62	14	Ditto	—.099	64	64	—	Ditto
M.	18	—.132	64	61	3	Fine	—.117	76	64	12	Fine	—.090	59	59	—	Clear & Fine
☾ T.	19	—.072	70	61	9	Ditto & Sultry	—.117	73	63	10	Overcast	—.044	59	59	—	Fine
W.	20	—.002	69	63	6	Hazy & Ditto	29.969	67	66	1	Heavy Clouds	29.968	62	62	—	Ditto
Th.	21	29.944	65	62	3	Fine	—.897	69	62	7	Rather Hazy	—.790	60	60	—	Rain
F.	22	—.518	62	62	—	Overcast	—.516	66	63	3	Cloudy	—.699	57	55	2	Clear & Fine
S.	23	—.811	64	62	2	Cloudy	—.808	72	63	9	Ditto	—.912	57	56	1	Ditto
S.	24	—.946	64	52	12	Ditto & Windy	—.962	65	49	16	Ditto	30.005	57	56	1	Ditto
M.	25	30.011	59	52	7	Cloudy	30.027	63	52	11	Fine	—.085	53	53	—	Clear & Cold
T.	26	—.134	59	53	6	Ditto	—.147	64	50	14	Cloudy	—.200	53	53	—	Ditto
W.	27	—.298	62	54	8	Fine	—.281	70	52	18	Fine	—.330	60	60	—	Slight Clouds
○ Th.	28	—.373	69	64	5	Sultry	—.366	75	60	15	Ditto & Hot	—.360	64	64	—	Clear & Fine
F.	29	—.393	69	64	5	Fine	—.313	75	62	13	Ditto	—.380	61	61	—	Ditto
S.	30	—.416	64	63	1	Hazy & Dull.	—.400	73	59	14	Ditto	—.380	57	57	—	Ditto
		29.880	63.73	59 96	3.76		29.869	68.33	60.03	8.30		29.900	57.06	56.83	.23	

JUNE.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	61	—41	82	—35	SW	Little		.20	The heat and moisture, which in this month exceeded the average, compensated in some measure for the unfavourable weather of the preceding one. Vegetation made considerable progress; but although the temperature was nearly 2° above the mean, yet there was rather a deficiency of sun. The weather was generally cloudy and showery. Heavy thunder showers occurred on the forenoon of the 7th, and the afternoon of the 12th. The amount of rain was nearly 3 inches. The South-west winds were prevalent.
2	70	49	94	48	NE	Ditto			
3	72	53	89	52	SE	Ditto			
4	63	52	69	51	——	Ditto		.14	
5	65	46	73	39	S	Ditto			
6	66	46	82	38	——	Ditto		.01	
7	61	50	72	48	SW	Ditto		.53	
8	69	51	82	45	W	Ditto		.02	
9	70	50	84	44	SW	Ditto		.60	
10	73	52	95	45	——	Brisk		.01	
11	71	53	87	55	S	Ditto		.22	
12	71	56	85	53	——	Ditto		.54	
13	74	54	86	48	——	Strong			
14	70	54	82	49	SW	Ditto		.02	
15	68	50	78	44	——	Ditto		.11	
16	72	56	83	50	——	Little		.01	
17	76	52	92	46	——	Ditto			
18	76	52	93	46	——	Ditto			
19	77	52	92	46	W	Ditto			
20	73	50	100	43	N	Strong			
21	72	54	97	53	NE	Little		.40	
22	67	51	79	46	SW	Strong		.04	
23	73	50	86	45	W	Ditto		.02	
24	65	50	72	44	——	Ditto		.02	
25	68	47	84	39	——	Ditto			
26	65	44	86	36	NW	Brisk			
27	73	55	97	47	N	Little			
28	+81	51	99	44	NW	Ditto			
29	78	55	+107	51	NE	Ditto			
30	74	45	95	37	E	Ditto			
	70.46	50.70	87.40	45.56			2.89		

Mean Pressure from the 3 daily observations 29.883 inches.
—— Temperature ..... Ditto ..... 63°.04
—— Dew Point ..... Ditto ..... 58°.94
—— Degree of Dryness ... Ditto ..... 4°.09
—— Degree of Moisture .. Ditto ..... .881
—— Force of Vapour ..... Ditto ..... .542 inch.
Least observed degree of Moisture ..... .523
Maximum Temperature in Shade ..... 81°
Minimum Temperature in ditto ..... 41°
Maximum Temperature in the Sun .....107°
Minimum of Terrestrial Radiation ..... 35°
Mean Temperature of External Air ..... 60°.58

WINDS.

North .....2 days	N. East .....3 days
South .....5 ..	S. East .....2 ..
East .....1 ..	N. West .....2 ..
West .....5 ..	S. West.....10 ..

30 days.

Amount of Rain..... 2.89 inches.

JULY.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	30.305	70	62	8	Sultry	30.247	76	55	21	Fine	30.223	61	60	1	Fine
M.	2	—.207	66	59	7	Fine	—.187	75	59	16	Rather Cloudy	—.165	59	59	—	Clear and Do.
T.	3	—.142	62	59	3	Hazy	— 113	70	60	10	Hazy&Sultry	—.064	58	58	—	Ditto
☽ W.	4	—.015	63	62	1	Rather Cloudy	29 976	74	58	16	Fine	29.957	03	63	—	Ditto
Th.	5	—.006	68	64	4	Ditto	—.990	71	62	9	Ditto	—.977	64	62	2	Ditto
F.	6	29.923	70	65	5	Cloudy and Dull	—.873	73	66	7	Cloudy	—.727	59	59	—	Rain
S.	7	—.726	62	60	2	Cloudy	—.822	70	64	6	Ditto	—.925	61	60	1	Fine
S.	8	—.900	67	66	1	Ditto	—.880	72	68	4	Ditto	—.830	61	59	2	Slightly Overcast
M.	9	—.936	66	62	4	Ditto	—.978	73	64	9	Ditto	30.002	62	60	2	Fine
T.	10	—.966	70	63	7	Ditto	—.942	72	63	9	Ditto	29.820	61	60	1	Ditto
W.	11	—.786	68	68	—	Showers	— 830	72	54	18	Fine	—.895	60	60	—	Ditto
○ Th.	12	—.887	70	61	9	Fine	—.858	82	58	24	Ditto	—.724	61	61	—	Thunder showers
F.	13	—.810	71	68	3	Ditto & Cloudy	—.878	78	71	7	Ditto	—.989	63	63	—	Fine
S.	14	30.006	67	67	—	Heavy Rain	—.999	72	72	—	Overcast	30.249	60	60	—	Cloudy
S.	15	—.406	60	57	3	Fine	30.407	69	64	5	Slightly Clouded	—.354	60	57	3	Fine
M.	16	—.302	64	59	5	Ditto	—.349	74	62	12	Fine	—.195	61	61	—	Ditto
T.	17	—.182	70	56	14	Ditto	—.127	79	59	20	Ditto	—.077	62	62	—	Ditto
W.	18	—.092	60	46	14	Ditto	—.095	65	45	20	Ditto	—.124	53	50	3	Ditto
Th.	19	—.179	57	45	12	Ditto	—.188	62	42	20	Ditto	—.194	53	52	1	Cloudy
☾ F.	20	—.218	57	48	9	Ditto	—.190	65	41	24	Ditto	—.155	55	55	—	Overcast
S.	21	—.174	57	45	12	Ditto	—.157	64	48	16	Overcast	—.201	53	53	—	Cloudy & Cold
S.	22	—.210	60	50	10	Ditto	—.214	61	57	4	Ditto	—.243	55	55	—	Overcast
M.	23	—.218	61	53	8	Ditto	—.198	66	56	10	Ditto	—.161	58	57	1	Ditto
T.	24	—.202	61	57	4	Ditto	—.123	68	59	9	Ditto	—.254	58	58	—	Do. and Fine
W.	25	—.221	63	62	1	Cloudy	—.193	72	61	11	Very Fine	—.171	57	57	—	Fine
Th.	26	—.164	66	62	4	Fine	—.154	76	62	14	Ditto	—.132	56	56	—	Ditto
● F.	27	—.142	65	60	5	Ditto	—.134	66	60	6	Cloudy	—.161	54	53	1	Ditto
S.	28	—.224	59	56	3	Ditto	—.225	68	50	18	Fine	—.292	52	52	—	Ditto
S.	29	—.348	62	57	5	Cloudy	—.354	70	53	17	Cloudy & Fine	—.386	54	54	—	Do. and Clear
M.	30	—.390	65	60	5	Very Fine	—.371	72	56	16	Very Fine	—.347	55	55	—	Very Fine
T.	31	—.323	55	55	—	Overcast	—.277	64	57	7	Cloudy & Dull	—.188	54	54	—	Ditto
		30.120	63.93	58.51	5.41		30.107	70.67	58.25	12 41		30.102	58.16	57.58	.58	

JULY.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	79	52	+109	45	N	Brisk			This month was warm and dry. No rain fell after the 15th, and the whole amount was little more than one-third of the usual quantity. Most of it fell on the night of the 13th and morning of the 14th. The temperature rather exceeded the average. The barometer stood high and steady, especially during the latter half of the month.
2	76	47	97	41	NW	Little			
3	75	49	91	42	E	Ditto			
4	79	52	99	45	——	Ditto			
5	79	52	97	45	W	Ditto			
6	76	51	91	45	SW	Brisk	.03		
7	72	58	82	53	W	Ditto			
8	72	59	82	55	SW	Strong	.01		
9	75	57	89	52	W	Ditto			
10	72	56	80	54	S	Little	.04		
11	76	54	92	48	SW	Brisk			
12	80	57	100	52	S	Little	.02		
13	76	57	88	56	W	Brisk	.72		
14	75	47	92	41	NW	Little	.07		
15	74	54	96	49	W	Brisk			
16	77	57	92	53	——	Little			
17	+84	55	99	50	——	Brisk			
18	70	45	90	40	NW	Ditto			
19	67	41	95	35	——	Ditto			
20	69	43	94	36	W	Little			
21	64	50	91	46	NE	Ditto			
22	64	42	86	35	——	Ditto			
23	70	48	98	41	——	Ditto			
24	70	53	92	49	NW	Ditto			
25	75	48	98	45	W	Ditto			
26	72	47	95	43	E	Ditto			
27	69	46	99	41	NE	Ditto			
28	73	47	101	41	——	Ditto			
29	73	44	91	39	——	Ditto			
30	72	48	106	42	E	Ditto			
31	66	46	89	42	NE	Ditto			
	73.25	50.38	93.58	45.19			.89		

Mean Pressure from the 3 daily observations 30.109 inches.
—— Temperature .....Ditto..... 64°.25
—— Dew Point .....Ditto..... 58°.11
—— Degree of Dryness ....Ditto..... 6°.13
—— Degree of Moisture....Ditto..... .824
—— Force of Vapour.....Ditto..... .528 inch.
Least observed degree of Moisture..... .466
Maximum Temperature in Shade..... 84°
Minimum Temperature in ditto..... 41°
Maximum Temperature in the Sun .... 109°
Minimum of Terrestrial Radiation ..... 35°
Mean Temperature of External Air..... 61°.81

WINDS.

North.....1 days.	N. East ....7 days.
South .....2 ..	S.East.....0 ..
East .....4 ..	N. West....5 ..
West .....9 ..	S. West ....3 ..

31 days.

Amount of Rain ..... .89 inch.

AUGUST.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	30.095	61	55	6	Fine	30.042	69	62	7	Dry Haze	29.974	56	56	—	Rain
Th.	2	29.872	62	62	—	Rain	29.844	80	69	11	Very Sultry	—.863	64	64	—	Thund[r]Storm
☽ F.	3	—.927	64	64	—	Cloudy	—.930	72	64	8	Cloudy	—.991	59	59	—	Fine
S.	4	30.060	64	61	3	Do. & Fine	30.069	73	64	9	Ditto	30.060	59	59	—	Ditto
S.	5	29.985	62	62	—	Rain	29.918	68	68	—	Rain	29.884	59	59	—	Rain
M.	6	—.897	62	62	—	Heavy Dew	—.926	65	65	—	Heavy Rain	—.913	60	60	—	Overcast
T.	7	—.930	66	65	1	Fine	—.901	72	57	15	Fine	30.000	57	57	—	Clear & Fine
W.	8	30.065	62	60	2	Very Fine	30.062	75	59	16	Very Fine	—.073	57	57	—	Ditto
Th.	9	—.061	64	64	—	Ditto	—.057	80	63	17	Very Hot	—.074	62	62	—	Very Fine
F.	10	—.125	69	64	5	Ditto	—.144	82	67	15	Ditto	—.223	65	65	—	Ditto
○ S.	11	—.304	69	64	5	Ditto	—.291	78	51	27	Ditto	—.313	58	58	—	Ditto
S.	12	—.301	64	60	4	Ditto	—.208	78	51	27	Ditto	—.130	60	58	2	Ditto
M.	13	29.985	60	60	—	Cloudy	29.920	71	62	9	Fine	29.892	55	55	—	Ditto
T.	14	—.880	62	62	—	Foggy	—.887	74	59	15	Light Haze	—.890	59	59	—	Ditto
W.	15	—.887	65	65	—	Overcast	—.878	77	72	5	Dull but Fine	—.894	60	60	—	Ditto
Th.	16	—.953	67	65	2	Cloudy, Fine	—.976	75	62	13	Fine	30.090	57	55	2	Ditto
F.	17	30.115	62	62	—	Fine	30.097	71	54	17	Ditto	—.065	58	58	—	Ditto
S.	18	29.936	67	67	—	Showers	29.865	69	69	—	Showers	29.862	60	60	—	Rain
☾ S.	19	—.748	63	63	—	Rain	—.753	72	72	—	Ditto	—.936	56	56	—	Clear
M.	20	30.158	69	59	10	Fine	30.024	73	52	21	Fine	—.934	64	64	—	Overcast
T.	21	29.910	68	68	—	Dull	29.871	66	66	—	Rain	—.721	66	66	—	Wet
W.	22	—.702	63	63	—	Cloudy	29.722	72	60	12	Fine	—.834	55	55	—	Clear
Th.	23	—.903	62	57	5	Fine	—.905	65	65	—	Heavy showers	—.947	52	52	—	Ditto
F.	24	30.057	60	58	2	Ditto	30.039	66	54	12	Very Fine	30.040	53	53	—	Showers
S.	25	29.834	63	63	—	Rain	29.773	67	59	8	Ditto	29.754	50	50	—	Fine
● S.	26	—.695	57	56	1	Fine	—.680	64	54	10	Cloudy	—.846	52	52	—	Overcast
M.	27	—.770	60	57	3	Cloudy	—.640	62	62	—	Rain	—.442	57	57	—	Stormy with Rain
T.	28	—.198	62	62	—	Rain	—.156	68	59	9	Fine	—.319	53	53	—	Overcast
W.	29	—.330	54	54	—	Ditto	—.346	55	55	—	Cold Rain	—.459	56	56	—	Rain
Th.	30	—.504	57	57	—	Ditto	—.557	56	56	—	Rain	—.594	53	53	—	Clear
F.	31	—.669	54	54	—	Clear	—.746	66	55	11	Fine	—.658	56	56	—	Fine
		29.898	62.70	61.12	1.58		29.878	70.35	60.87	9.48		29.892	57.67	57.54	.12	

AUGUST.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	78	55	102	55	E	Brisk	.27	The dryness which prevailed in the end of the last month was succeeded by hot sultry weather, with rain and Thunder in the commencement of this. Dry weather again set in after the 6th, and continued till the 17th; after which, rain more or less fell every day till the end of the month; and the amount was more than double the usual quantity for this period of the season. The temperature was nearly 3° above the mean of the month. On the forenoon of the 2d the Thermometer stood at 85° in the shade, and a heavy thunder storm took place in the afternoon, accompanied with much rain. Between the 7th and 13th, the weather was very hot and dry.
2	+85	58	+110	55	S	Little	.45	
3	74	53	94	47	W	Ditto		
4	72	58	84	55	SW	Ditto	.36	
5	69	51	75	48	——	Ditto	.15	
6	76	56	96	50	——	Ditto	.01	
7	75	47	94	41	——	Ditto		
8	80	50	104	45	——	Ditto		
9	82	54	107	50	E	Brisk		
10	85	61	108	58	S	Ditto		
11	81	47	105	40	——	Little		
12	81	54	106	46	——	Ditto		
13	71	47	97	41	NW	Ditto		
14	75	56	100	51	E	Ditto		
15	75	52	90	46	SW	Ditto		
16	78	48	99	41	W	Brisk		
17	78	52	102	45	——	Little	.01	
18	68	58	72	55	SW	Brisk	.10	
19	73	46	94	40	W	Strong	.06	
20	77	60	95	58	——	Brisk	.06	
21	72	55	85	53	NW	Little	.50	
22	73	53	89	49	W	Brisk	.01	
23	71	46	85	40	——	Little	.04	
24	74	50	85	44	——	Ditto	.16	
25	69	48	82	42	S	Brisk	.30	
26	67	—42	87	—35	W	Ditto	.06	
27	64	54	73	52	SW	Strong	.34	
28	68	49	85	49	E	Little	.03	
29	57	52	58	51	W	Brisk	.29	
30	64	45	80	41	——	Little	.26	
31	69	53	85	52	——	Ditto	.16	
	73.58	51.93	91.22	47.58			3.62	

Mean Pressure from the 3 daily observations 29.889 inches.
—— Temperature ..... Ditto ..... 63°.57
—— Dew Point ..... Ditto ..... 59°.84
—— Degree of Dryness ... Ditto 3.72
—— Degree of Moisture ... Ditto ..... .888
—— Force of Vapour ..... Ditto ..... .556 inch.
Least observed degree of Moisture ..... .415
Maximum Temperature in Shade ..... 85°
Minimum Temperature in ditto ..... 42°
Maximum Temperature in the Sun .....110°
Minimum of Terrestrial Radiation ..... 35°
Mean Temperature of External Air ..... 52°.75

Winds.

North	0 days.	N. East	0 days.
South	5 ..	S. East	2 ..
East	4 ..	N. West	0 ..
West	12 ..	S. West	8 ..

31 days.

Amount of Rain.....3.62 inches.

SEPTEMBER.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.639	58	58	—	Fine	29.638	63	63	—	Fine	29.748	54	54	—	Showery
☽ S.	2	—.947	59	59	—	Ditto	—.995	62	51	11	Ditto	30.113	55	55	—	Fine
M.	3	30.191	55	55	—	Ditto	30.192	66	51	15	Ditto	—.245	51	51	—	Clear
T.	4	—.286	55	55	—	Hazy	—.246	66	53	13	Ditto	—.153	49	49	—	Ditto
W.	5	—.098	53	53	—	Slight Fog	—.073	65	52	13	Very Fine	—.066	53	53	—	Fine
Th.	6	29.998	61	61	—	Ditto & Fine	29.944	68	62	6	Ditto	29.880	56	56	—	Heavy Rain
F.	7	—.826	61	61	—	Fine	—.867	65	65	—	Rain	—.957	56	56	—	Fine
S.	8	30.037	62	62	—	Very Fine	30 035	69	58	11	Fine	30.043	53	53	—	Clear
S.	9	—.010	58	58	—	Overcast	29.959	68	64	4	Overcast & Ditto	29.915	55	55	—	Very Fine
○ M.	10	29.768	59	59	—	Heavy Rain	—.783	65	53	12	Fine	—.909	50	50	—	Clear
T.	11	30.071	56	53	3	Very Fine	30.148	61	53	8	Cloudy	30.279	47	47	—	Ditto
W.	12	—.322	53	53	—	Foggy	—.293	63	55	8	Ditto	—.237	55	55	—	Fine
Th.	13	— 073	69	69	—	Rain	—.004	63	63	—	Slight showers	29.898	55	55	—	Overcast
F.	14	29.899	52	52	—	Clear & Cool	29.892	60	60	—	Ditto & Windy	—.881	54	54	—	Slightly Cloudy
S.	15	—.928	54	54	—	Fine but Cool	30.015	62	56	6	Cloudy & Fine	30.169	36	36	—	Clear
S.	16	30.242	58	56	2	Very Fine	—.234	66	60	6	Fine	—.291	55	55	—	Fine
☾ M.	17	—.254	58	57	1	Overcast	—.298	66	60	6	Ditto	—.160	55	55	—	Ditto
T.	18	29.993	61	60	1	Ditto	29.984	64	57	7	Slight Haze	—.189	45	45	—	Clear & Cool
W.	19	30.353	51	46	5	Clear	30.377	56	44	12	Clear	—.477	39	39	—	Ditto
Th.	20	—.546	44	44	—	Ditto	—.545	62	51	11	Ditto & Fine	—.540	44	44	—	Ditto
F.	21	—.557	49	49	—	Very Fine	—.536	66	59	7	Very Fine	—.543	56	56	—	Fine
S.	22	—.515	57	57	—	Foggy	—.466	64	60	4	Cloudy	—.410	50	50	—	Ditto
S.	23	—.383	54	54	—	Fine, Slight Haze	—.268	70	54	16	Very Fine	—.332	48	48	—	Clear
● M.	24	—.391	49	49	—	Ditto	—.376	73	54	19	Ditto	—.403	52	52	—	Ditto & Fine
T.	25	—.427	51	51	—	Foggy	—.409	71	60	11	Very Hot	—.379	52	52	—	Ditto
W.	26	—.314	50	50	—	Ditto	—.248	73	63	10	Ditto	—.212	51	51	—	Ditto
Th.	27	—.181	51	51	—	Ditto	—.132	75	65	10	Ditto	—.086	49	49	—	Clear
F.	28	—.060	48	48	—	Ditto	—.051	71	58	13	Ditto	—.048	53	53	—	Foggy
S.	29	—.044	54	54	—	Slight Fog	29.978	74	65	9	Very Fine	29.781	58	58	—	Fine
S.	30	29.932	62	62	—	Showers	—.929	65	65	—	Showers	29.943	60	60	—	Clear
		30.176	55.40	55.00	.40		30.130	66.06	57.80	8.26		30.142	51.53	51.53	—	

SEPTEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	70	47	88	44	W	Little	.20	This month was rather dry, and proved favourable for the operations of the garden. No rain fell between the 13th and 29th. The temperature was about the average; but although this was exceeded by the three preceding months, respectively, yet the productions of the garden were, in general, backward in ripening. This must therefore be attributed to the continued check which vegetation sustained in the month of May. The last week was very hot for the season; on the 25th, in particular, the Thermometer stood as high 82° in the shade.
2	69	43	92	37	——	Ditto		
3	72	43	96	36	——	Ditto		
4	72	45	97	38	NE	Ditto		
5	72	46	99	39	W	Ditto		
6	67	52	86	50	E	Ditto	.61	
7	65	48	82	43	W	Ditto	.01	
8	72	48	94	43	——	Ditto		
9	69	54	83	49	——	Ditto	.01	
10	68	47	84	42	——	Brisk	.14	
11	67	37	92	32	——	Little		
12	54	49	82	46	——	Brisk		
13	62	46	77	42	——	Little	.04	
14	64	49	82	45	——	Strong		
15	64	42	80	35	NW	Brisk		
16	64	52	76	50	——	Little		
17	68	53	80	51	W	Ditto		
18	65	37	85	27	——	Ditto		
19	60	—34	89	—27	N	Ditto		
20	67	39	98	34	NW	Ditto		
21	66	52	91	46	N	Ditto		
22	66	46	92	41	E	Ditto		
23	77	38	+106	31	——	Ditto		
24	81	42	105	36	S	Ditto		
25	+82	44	101	39	W	Ditto		
26	79	44	98	39	SW	Ditto		
27	79	41	103	36	S	Ditto		
28	78	43	98	37	——	Ditto		
29	79	55	99	52	——	Ditto	.09	
30	66	47	76	42	SW	Ditto	.02	
	69.46	45.43	90.36	40.30			1.12	

Mean Pressure from the 3 daily observations 30.149 inches.
—— Temperature ..... Ditto ..... 57°.66
—— Dew Point ..... Ditto ..... 54°.77
—— Degree of Dryness .... Ditto ..... 2°.88
—— Degree of Moisture .. Ditto ..... .909
—— Force of Vapour ..... Ditto ..... .471
Least observed degree of Moisture ..... .541
Maximum Temperature in Shade ..... 82°
Minimum Temperature in ditto ..... 34°
Maximum Temperature in the Sun .....106°
Minimum of Terrestrial Radiation ..... 27°
Mean Temperature of External Air ..... 57°.44

WINDS.

North 2	days	N. East 1	days.
South..... 4	..	S. East 0	..
East.....3	..	N. West 3	..
West 15	..	S. West 2	..

30 days.

Amount of Rain..... 1.12 inch.

OCTOBER.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
☽ M.	1	30.037	55	55	—	Slight Fog	30.016	68	64	4	Fine	30.000	55	55	—	Fine
T.	2	29.928	62	62	—	Rain	29.923	68	64	4	Ditto	29.964	50	50	—	Clear
W.	3	—.918	50	50	—	Foggy	—.855	66	60	6	Ditto	—.789	58	58	—	Rain
Th.	4	—.769	59	59	—	Slight Rain	—.734	64	64	—	Rain	—.579	59	59	—	Do. & Windy
F.	5	—.416	58	58	—	Rain	—.231	60	60	—	Heavy Ditto	—.315	50	50	—	Clear
S.	6	—.508	48	48	—	Fine	—.513	61	61	—	Cloudy	—.599	43	43	—	Ditto
S.	7	—.593	54	54	—	Clear	—.654	57	57	—	Showers	—.564	55	55	—	Windy wth showers
M.	8	—.165	52	52	—	Stormy, Showers	—.335	53	53	—	Do. & Stormy	—.708	44	44	—	Fine
⊙ T.	9	—.869	48	48	—	Clear	—.952	59	54	5	Fine	30.006	51	51	—	Rain
W.	10	—.998	60	60	—	Slight Rain	30.103	62	62	—	Ditto	—.230	60	60	—	Very Fine
Th.	11	30.300	61	61	—	Overcast	—.305	68	66	2	Ditto	—.295	60	60	—	Ditto
F.	12	—.077	61	61	—	Cloudy	29.987	64	62	2	Ditto	29.934	55	55	—	Fine
S.	13	29.938	51	51	—	Clear	—.943	59	52	7	Ditto	30.175	46	46	—	Clear
S.	14	30.327	44	44	—	Heavy Dew	30.230	61	55	6	Ditto	—.195	54	54	—	Fine
M.	15	—.275	47	47	—	Ditto	—.312	61	61	—	Ditto	—.314	49	49	—	Ditto
☾ T.	16	—.189	55	55	—	Rain	—.218	56	55	1	Ditto	—.320	45	45	—	Ditto
W.	17	—.401	42	42	—	Very Foggy	—.372	56	56	—	Ditto	—.347	47	47	—	Ditto
Th.	18	—.312	51	51	—	Ditto	—.274	54	54	—	Overcast	—.261	54	54	—	Overcast
F.	19	—.256	52	52	—	Rain	—.248	54	54	—	Rain	—.302	46	46	—	Clear
S.	20	—.343	36	36	—	Slight Frost	—.340	55	55	—	Very Fine	—.369	40	40	—	Ditto
S.	21	—.375	47	47	—	Foggy	—.318	53	53	—	Ditto	—.363	42	42	—	Fine
M.	22	—.278	36	36	—	Thick Fog	—.252	53	53	—	Ditto	—.313	38	38	—	Light Fog
● T.	23	—.352	43	43	—	Foggy	—.341	54	51	3	Fine	—.344	47	47	—	Fine
W.	24	—.366	48	48	—	Ditto	—.374	50	48	2	Cloudy	—.436	46	46	—	Ditto
Th.	25	—.471	45	45	—	Hazy	—.439	50	50	—	Slight Haze	—.422	41	41	—	Hazy
F.	26	—.412	45	45	—	Thick Fog	—.382	51	51	—	Foggy	—.386	40	40	—	Foggy
S.	27	—.399	40	40	—	Ditto	—.370	51	51	—	Hazy	—.345	45	45	—	Dense Fog
S.	28	—.271	49	49	—	Rain	—.223	56	56	—	Ditto	—.142	50	50	—	Ditto
M.	29	29.999	53	53	—	Ditto	29.936	56	56	—	Rain	—.126	47	47	—	Clear
T.	30	30.199	41	41	—	Clear	30.113	54	50	4	Fine	—.058	49	49	—	Overcast
☽ W.	31	—.124	43	43	—	Ditto	—.123	54	49	5	Ditto	29.949	48	48	—	Rain
		30.092	49.54	49.54	—		30.077	57.74	56.09	1.64		30.101	48.83	48.83		

OCTOBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	71	53	89	50	S	Brisk	.53	This month was warm and humid, the atmosphere being in general completely saturated with moisture. The quantity of rain was about one-third above the average, the greater part of which fell in the beginning of the month. The last half was hazy and foggy, and, as is usually the case under such circumstances, the barometer stood high. The temperature averaged 3° above the usual mean. The 8th was stormy and wet, with a strong gale from the S.W., in consequence of which much of the latest and best sorts of fruits was blown down.
2	69	42	85	39	SW	Little	.02	
3	68	56	88	54	S	Brisk	.06	
4	63	52	65	50	SW	Little	.20	
5	61	42	78	36	S	Brisk	.57	
6	63	35	81	31	——	Little	.26	
7	58	50	70	49	SW	Brisk	.41	
8	56	43	76	37	——	Strong	.02	
9	64	50	84	45	W	Brisk	.07	
10	67	55	92	52	SW	Little		
11	+72	56	+96	53	W	Brisk		
12	63	47	82	43	S	Ditto	.12	
13	62	37	90	31	SW	Ditto	.02	
14	62	40	87	34	S	Little		
15	64	51	90	48	W	Ditto	.04	
16	60	35	83	29	——	Ditto		
17	60	41	80	34	SW	Ditto		
18	60	50	70	40	——	Ditto	.08	
19	55	32	80	26	NE	Ditto	.14	
20	57	37	92	30	——	Ditto		
21	56	+31	85	—26	——	Ditto		
22	58	37	89	28	E	Ditto		
23	56	42	80	37	NE	Ditto		
24	51	41	67	35	E	Ditto		
25	52	38	82	32	——	Ditto		
26	53	36	74	30	W	Ditto		
27	52	42	77	41	——	Ditto	.11	
28	55	43	76	40	S	Ditto	.03	
29	55	35	75	27	——	Ditto	.17	
30	56	41	89	35	SW	Brisk		
31	61	47	66	46	——	Little	.24	
	60 00	43.12	81.22	38.51			3.09	

Mean Pressure from the 3 daily observations 30.090 inches.
—— Temperature.....Ditto..... 52°.03
—— Dew Point.....Ditto..... 51°.48
—— Degree of Dryness....Ditto..... .54
—— Degree of Moisture....Ditto..... .981
—— Force of Vapour.....Ditto..... .420 inch.
Least observed degree of Moisture..... .788
Maximum Temperature in the Shade.... 72°
Minimum Temperature in ditto..... 31°
Maximum Temperature in the Sun..... 96°
Minimum of Terrestrial Radiation..... 26°
Mean Temperature of External Air..... 51°.56

WINDS.

North	0 days.	N. East.....	4 days.
South	8 ..	S. East.....	0 ..
East.....	3 ..	N. West	0 ..
West.....	6 ..	S. West.....10	..

31 days.

Amount of Rain ..... 3.09 inches.

NOVEMBER.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	29.591	57	57	—	Stormy & Wet	29.700	59	59	—	Showery	29.926	48	48	—	Very Fine
F.	2	29.841	48	48	—	Slightly overcast	—.703	57	57	—	Rain	—.490	58	58	—	Rain
S.	3	29.703	52	52	—	Fine	—.819	54	54	—	Cloudy	—.811	51	51	—	Showers
S.	4	29.871	45	45	—	Ditto	—.841	49	42	7	Fine	—.654	34	34	—	Clear
M.	5	29.712	37	37	—	Cloudy & Cold	—.832	42	40	2	Do. & Cold	30.069	39	39	—	Ditto
T.	6	30.279	40	40	—	Showery	30.297	49	42	7	Ditto	—.410	41	41	—	Ditto
W.	7	—.439	41	41	—	Fine	—.376	46	40	6	Ditto	—.295	37	37	—	Do. & Fine
○ Th.	8	—.100	41	41	—	Overcast	29.977	41	41	—	Rain	29.953	37	37	—	Overcast
F.	9	29.938	37	37	—	Foggy	—.920	47	47	—	Foggy	—.902	36	36	—	Fine
S.	10	—.749	45	45	—	Clearing	—.602	48	48	—	Rain	—.512	48	48	—	Very Clear
S.	11	—.605	37	37	—	Foggy	—.618	51	51	—	Fine	—.639	40	40	—	Rain
M.	12	—.642	40	40	—	Clearing	—.736	45	45	—	Hazy	—.762	42	42	—	Foggy
T.	13	—.819	38	38	—	Foggy	—.805	43	43	—	Foggy	—.786	37	37	—	Ditto
W.	14	—.739	49	49	—	Hazy	—.741	53	53	—	Rain	—.795	48	48	—	Rain
☾ Th.	15	—.879	47	47	—	Foggy	—.945	48	48	—	Hazy	30.124	46	46	—	Hazy
F.	16	30.313	42	42	—	Clearing	30.317	49	47	2	Fine	—.410	44	44	—	Fine
S.	17	—.424	38	38	—	Fine	—.482	46	45	1	Ditto	—.325	42	42	—	Ditto
S.	18	—.207	42	42	—	Overcast	—.126	43	43	—	Hazy	—.050	44	44	—	Overcast
M.	19	29.976	42	42	—	Foggy	29.912	47	47	—	Ditto	29 862	47	47	—	Ditto
T.	20	—.759	45	45	—	Overcast	—.704	50	50	—	Very Fine	—.680	45	45	—	Fine
W.	21	—.618	44	44	—	Foggy	—.666	49	49	—	Cloudy	—.620	45	45	—	Do.& Overcast
● Th.	22	—.783	43	43	—	Ditto	—.823	50	50	—	Slight Haze	—.930	39	39	—	Foggy
F.	23	—.967	38	38	—	Ditto	—.951	53	44	9	Very Fine	30.031	48	48	—	Very Fine
S.	24	30.057	50	50	—	Ditto	30 032	55	55	—	Cloudy & Fine	—.006	51	51	—	Ditto
S.	25	29 912	49	49	—	Rain	29.893	50	50	—	Cloudy	29.789	42	42	—	Clear
M.	26	—.567	43	43	—	Clear	—.582	49	49	—	Very Fine	—.751	42	42	—	Fine
T.	27	—.751	36	36	—	Foggy	—.610	44	44	—	Rain	—.469	44	44	—	Clear
W.	28	—.653	38	38	—	Clear & Cool	—.772	43	43	—	Clear	—.681	46	46	—	Stormy & Wet
Th.	29	—.601	42	42	—	Ditto	—.636	45	45	—	Ditto	—.591	39	39	—	Clear with lightning
D F.	30	—.882	36	36	—	Ditto	—.878	44	44	—	Rain	—.778	49	49	—	Rain
		29.879	42.73	42.73			29.876	48.30	47.16	1.13		29.870	43.63	43.63	—	

NOVEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	+61	43	66	37	W	Brisk	.02	
2	59	50	62	45	SW	Little	.06	This month fully possessed its usual characteristic of a damp and foggy atmosphere. The temperature was mild for the season. The weather was alternately foggy, or rainy, and occasionally fine. The night of the 28th was stormy and wet, and that of the 29th was clear, with lightning from the South West, which was followed by heavy rain on the 30th. On the 17th the Barometer stood high. The quantity of rain was below the average.
3	55	44	+67	40	W	Brisk	.02	
4	51	—31	67	25	——	Ditto	.04	
5	49	39	62	34	N	Ditto		
6	46	38	61	33	NE	Ditto	.01	
7	47	36	63	30	NW	Ditto		
8	41	35	44	32	NE	Little	.02	
9	47	33	50	—24	E	Ditto		
10	45	32	49	29	SE	Brisk	.39	Mean Pressure from the 3 daily observations 29.875 inches.
11	54	34	63	31	SW	Little	.08	—— Temperature.....Ditto..... 44°.88
12	43	35	60	31	——	Ditto	.03	—— Dew Point.....Ditto..... 44°.50
13	51	35	52	29	SE	Ditto		—— Degree of Dryness.....Ditto..... .38
14	52	41	52	40	S	Ditto	.14	—— Degree of Moisture.....Ditto..... .985
15	50	42	60	40	NE	Ditto	.02	—— Force of Vapour.....Ditto..... .334 inch.
16	50	32	63	24	——	Brisk		Least observed degree of Moisture..... .738
17	48	37	60	33	E	Ditto		Maximum Temperature in Shade ..... 61°
18	45	41	48	40	SE	Little	.02	Minimum Temperature in ditto..... 31°
19	50	43	56	38	——	Ditto		Maximum Temperature in the Sun..... 67°
20	53	39	56	33	E	Ditto		Minimum of Terrestrial Radiation..... 24°
21	48	43	58	38	NE	Ditto		Mean Temperature of External Air..... 43°.76
22	54	32	59	27	E	Ditto		
23	37	39	64	32	SE	Ditto		WINDS.
24	54	46	58	43	S	Ditto	.18	North.....1 days | N. East.....5 days
25	51	38	57	34	W	Ditto	.24	South ..... 3 .. | S. East.....5 ..
26	51	30	58	25	SW	Ditto		East .....4 .. | N. West.....1 ..
27	45	38	48	32	S	Brisk	.11	West .....5 . | S. West.....6 ..
28	51	39	52	35	W	Ditto	.26	30 days.
29	47	33	51	26	SW	Ditto		
30	52	41	55	37	——	Ditto	.30	Amount of Rain.....1.94 inch.
	49.56	37.96	57.36	33.23			1.94	

DECEMBER.

		Morning.					Noon.					Night.				
1832.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.830	44	44	—	Rain	29.854	56	56	—	Cloudy	29 803	55	55	—	Rain hail
S.	2	—.681	54	54	—	Stormy Showers	—.649	54	50	4	Fine	—.458	44	44	—	Do. & Stormy
M.	3	—.527	43	42	1	Windy & Clear	—.537	41	41	—	Boisterous & Wet	—.681	47	47	—	Fine
T.	4	—.978	42	41	1	Clear & Cold	30.028	47	43	4	Fine but Cold	30.179	42	42	—	Ditto
W	5	30.239	39	39	—	Ditto [Rain	—.209	42	40	2	Ditto	—.116	38	38	—	Rain
Th.	6	—.031	44	44	—	Foggy with slight	—.058	46	46	—	Drizzly	—.170	37	37	—	Clear
○ F.	7	—.283	40	40	—	Foggy	—.327	42	42	—	Foggy	—.396	39	39	—	Overcast
S.	8	—.385	40	40	—	Ditto	—.397	45	45	—	Ditto	—.526	45	45	—	Foggy
S.	9	.426	47	47	—	Do. & Drizzly	—.400	49	49	—	Ditto	—.399	46	46	—	Cloudy & Fine
M.	10	—.379	46	46	—	Clearing	—.358	48	48	—	Do. & Drizzly	—.359	46	46	—	Foggy
T.	11	—.555	35	35	—	Fine	—.427	47	47	—	Very Fine	—.474	45	45	—	Fine
W.	12	.495	43	43		Do. & Slight Fog	—.477	45	45	—	Foggy	—.415	36	36	—	Foggy
Th.	13	—.279	41	41		Foggy	—.131	50	50	—	Very Fine	—.086	35	35	—	Fine
☾ F.	14	29.950	46	46	—	Ditto	—.026	46	43	3	Fine	29.884	35	35	—	Overcast
S.	15	—.602	52	52	—	Rain	29.667	42	42	—	Heavy Rain	—.889	33	33	—	Clear
S.	16	30.039	29	29	—	Frosty	30.003	37	37	—	Fine	—.909	36	36	—	Cloudy
M.	17	29.536	42	42	—	Overcast	29.543	56	56	—	Cloudy	—.479	47	47	—	Stormy & Wet
T.	18	—.519	41	41	—	Stormy Showers	—.614	44	44	—	Fine but Cold	—.728	35	35	—	Clear
W.	19	—.727	33	33	—	Frosty	—.729	42	42	—	Clear	—.793	32	32	—	Ditto
Th.	20	—.974	30	30	—	Ditto	30.042	38	35	3	Ditto	30.006	30	30	—	Ditto
F.	21	—.836	36	36	—	Rain	29.718	48	48	—	Cloudy	29.781	41	41	—	Ditto
● S.	22	—.830	46	46	—	Cloudy	—.872	51	51	—	Fine	—.803	51	51	—	Overcast
S	23	—.686	51	51	—	Hazy	—.685	53	53	—	Drizzly	—.941	46	46	—	Drizzly
M.	24	30.050	43	43	—	Foggy	30.040	46	46	—	Fine	—.819	49	49	—	Ditto
T.	25	29.674	53	53	—	Stormy & Wet	29.816	53	53	—	Heavy Rain	30.012	38	38	—	Clear
W.	26	30.153	33	33	—	Frosty	30.180	44	44	—	Clear & Fine	—.196	38	38	—	Overcast
Th.	27	—.219	33	33	—	Slight Frost	—.194	41	41	—	Ditto	—.179	31	31	—	Very dense fog
F.	28	—.115	32	32	—	Very dense Fog	—.097	33	33	—	Foggy	29.990	38	38	—	Drizzly
S.	29	29 760	42	42	—	Rain	29.560	39	39	—	Cold & Wet	—.889	37	37	—	Ditto
☽ S.	30	30.128	36	36	—	Clear & Cold	30.170	37	37	—	Cloudy & Cold	30.149	34	34	—	Fine
M.	31	29.849	34	34	—	Sleet	29.922	40	40	—	Cold & Wet	30.371	36	36	—	Overcast
		29.992	40.96	40.90	.06		29.991	45.22	44.71	.51		30.028	40.06	40.06	—	

DECEMBER.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	+57	53	58	49	SW	Brisk		.06	The first four days of this month were stormy and wet; the 2d and 3d were particularly boisterous. From this to the 13th, the weather was generally foggy. Rain to the depth of half an inch fell on the 15th. The night of the 17th, and morning of the 18th, were stormy and wet, as was also the greater part of the 25th. The 27th and 28th were densely foggy; and the remainder was cold and wet, with some sleet on the morning of the 31st. Slight frosts were occasional throughout the month; but no fall of snow accompanied them. The temperature on the whole was above the average.
2	54	40	58	36	——	Strong		.19	
3	47	41	50	35	W	Ditto		.02	
4	47	34	51	28	N	Strong		.02	
5	36	45	46	34	NW	Little		.18	
6	45	36	47	29	N	Ditto		.01	
7	45	34	45	33	——	Ditto			
8	47	44	50	43	W	Ditto		.01	
9	51	48	54	39	SW	Ditto			
10	47	35	49	28	W	Ditto		.03	
11	46	34	50	32	——	Ditto			
12	49	32	54	23	SW	Ditto			
13	47	36	51	29	S	Ditto			
14	55	34	52	30	SW	Ditto		.03	
15	52	—27	52	—20	N	Ditto		.50	
16	48	38	50	37	W	Ditto		.02	
17	57	38	+59	37	SW	Strong		.10	
18	45	31	49	25	W	Brisk			
19	42	28	47	22	——	Little			
20	40	29	45	25	SW	Brisk			
21	52	40	57	35	S	Little		.01	
22	54	44	59	40	——	Ditto		.02	
23	53	41	55	38	SW	Ditto		.07	
24	53	45	56	41	——	Ditto			
25	54	31	54	25	——	Brisk		.22	
26	47	30	52	24	——	Little			
27	44	29	50	25	E	Ditto			
28	41	32	42	30	——	Ditto		.06	
29	40	34	41	30	——	Brisk		.15	
30	40	32	42	30	——	Ditto		.06	
31	40	30	41	29	NW	Ditto		.12	
	47.58	36.29	50.51	31.64				1.88	

Mean Pressure from the 3 daily observations 30°.004 inches.
—— Temperature .....Ditto..... 42°.08
—— Dew Point ....Ditto..... 41°.89
—— Degree of Dryness.....Ditto..... .19
—— Degree of Moisture....Ditto..... .993
—— Force of Vapour .....Ditto..... .302 inch.
Least observed degree of Moisture ..... .869
Maximum Temperature in Shade ..... 57°
Minimum Temperature in ditto ..... 27°
Maximum Temperature in the Sun ..... 59°
Minimum of Terrestrial Radiation ..... 20°
Mean Temperature of External Air ..... 41°.93

WINDS.

North	4 days	N. East.....	0 days.
South	3 ..	S. East	0 ..
East	4 ..	N. West....	2 ..
West	7 ..	S. West	11 ..

31 days.

Amount of Rain..... 1.88 inch.

Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1832; deduced from the Observations recorded in the preceding Journal.

1832.	Pressure.								Temperature.											
					Mean at				In the Shade.			Mean at				In Sun's Rays.		Terrestrial Radiation		
Months.	Max.	Min.	Med.	Range of Barom.	Morn.	Noon.	Night.	Mean of the three Observations.	Max.	Min.	Med.	Morn.	Noon.	Night	Mean of the three Observs	Max.	Min.	Max.	Min.	Med. of Sun and Radn.
Jan. .	30.509	29.379	30.014	1.130	30.027	29.996	30.010	30.011	51	22	37.2	34.6	39.9	35.9	36.8	60	33	39	15	37.5
Feb. .	30.591	29.231	30.111	1.360	30.109	30.102	30.118	30.109	54	24	38.5	35.5	43.0	36.9	38.5	66	40	44	14	40.5
March	30.380	29.363	29.945	1.017	29.951	29.936	29.936	29.941	57	25	42.5	41.3	48.5	39.1	43.0	84	46	42	15	46.6
April	30.578	29.170	30.017	1.408	30.027	29.990	30.029	30.015	74	30	48.1	47.6	56.2	44.7	49.5	101	66	43	21	54.8
May .	30.437	29.346	29.979	1.081	29.982	29.967	29.979	29.976	79	32	52.6	54.5	60.9	48.7	54.7	105	56	52	24	59.3
June.	30.416	29.463	29.885	0.953	29.880	29.869	29.900	29.883	81	41	60.5	63.7	68.3	57.0	63.0	107	69	55	35	66.4
July .	30.407	29.724	30.110	0.683	30.120	30.107	30.102	30.109	84	41	61.8	63.9	70.6	58.1	64.2	109	82	56	35	69.3
Aug.	30.313	29.156	29.892	1.157	29.898	29.878	29.892	29.889	85	42	62.7	62.7	70.3	57.6	63.5	110	58	58	35	69.3
Sept.	30.557	29.638	30.153	0.919	30.176	30.130	30.142	30.149	82	34	57.4	55.4	66.0	51.5	57.6	106	76	52	27	63.6
Oct. .	39.471	29.166	30.095	1.305	30.092	30.077	30.101	30.090	72	31	51.5	49.5	57.7	48.8	52.0	96	65	54	26	54.8
Nov. .	30.482	29.490	29.875	0.992	29.879	29.876	29.870	29.875	61	31	43.7	42.7	48.3	43.6	44.8	67	44	45	24	45.3
Dec. .	30.526	29.527	30.006	0.999	29.992	29.991	30.028	30.004	57	27	41.9	40.9	45.2	40.0	42.0	59	41	49	20	41.0
Aver.	30.472	29.387	30.007	1.083	30.014	29.993	30.009	30.005	69.7	31.6	50.8	49.4	56.2	46.8	50.8	89.1	56.3	49.0	24.2	54.0

1832.	Hygrometer indicating Dew Point.								Scale of the Winds.									Rain.
	Mean Dew Point at			Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness.	Mean degree of Moisture.	Least degree of Moisture.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	
Months.	Morn.	Noon.	Night.															In. Pts.
Jan. .	34.5	39.4	35.8	36.6	0.253	0.21	999	838	2	1	5	3	9	8	1	2	31	1.32
Feb. .	35.1	41.7	36.6	37.8	0.262	0.67	973	853	6	5	3	4	6	3	1	1	29	0.23
March	40.0	42.0	38.5	40.2	0.282	2.78	892	382	2	5	2	3	8	2	6	3	31	1.50
April	45.6	44.6	43.7	44.6	0.335	4.88	850	408	6	3	9	3	2	4	2	1	30	0.95
May .	48.9	49.6	48.1	48.8	0.386	5.85	819	472	4	6	3	3	8	1	3	3	31	2.16
June.	59.9	60.0	50.8	58.9	0.542	4.09	881	523	2	3	1	2	5	10	5	2	30	2.89
July .	58.5	58.2	57.5	58.1	0.528	6.13	824	446	1	7	4	0	2	3	9	5	31	0.89
Aug.	61.1	60.8	57.5	59.8	0.556	3.72	888	415	0	0	4	2	5	8	12	0	31	3.62
Sept.	55.0	57.8	51.5	54.7	0.471	2.88	909	541	2	1	3	0	4	2	15	3	30	1.12
Oct.	49.5	56.0	48.8	51.4	0.420	0.54	981	788	0	4	3	0	8	10	6	0	31	3.09
Nov.	42.7	47.1	43.6	44.5	0.334	0.38	985	738	1	5	4	5	3	6	5	1	30	1.94
Dec. .	40.9	44.7	40.0	41.8	0.302	0.19	993	869	4	0	4	0	3	11	7	2	31	1.88
Aver.	47.6	50.2	46.5	48.1	0.396	2.69	916	605	30	40	45	25	63	68	72	23	366	21.59

LV. *An Account of some Experiments made in the Garden of the Horticultural Society, with a view to ascertaining the relative productiveness of the Tubers and Sets of Potatoes.* *By* John Lindley, *Ph. D. F. R. S. Assistant Secretary.*

Read March 4, 1834.

The Transactions of this Society have been at various times the medium of some highly important communications by our President, relating to the method of cultivation of the Potatoe*; from which it appears that the productive powers of that plant are very far beyond any thing of which either the Farmer or Gardener had a previous conception.

As a great deal of interest has been excited by these statements, I have thought it might be desirable, in laying before the Society the result of some fresh experiments which have been tried in the Garden upon this subject, to embody in one Paper all the more material facts that have been elicited in the enquiry.

The first of Mr. Knight's Papers, read on the 1st of July, 1828, contained an exposition of the physical causes which were likely to increase or diminish the productiveness of the Potatoe, together with a statement that a very unusually large crop had actually been obtained by cultivating it in conformity with the principles which might be deduced from theory: and perhaps a more beautiful

* 1. On the Culture of the Potatoe, Vol. VII. Old Series, page 405.

2. An Account of an Economical Method of obtaining very early crops of New Potatoes, Vol. I. New Series, page 35.

3. On the Potatoe, Vol. I. New Series, page 93.

4. On the Culture of the Potatoe, Vol. I. New Series, page 415.

application of a knowledge of the laws that govern organic beings has never yet been made to any object of great public interest.

" The stems of Potatoes as of other plants," Mr. KNIGHT observes " rise perpendicularly under the influence of their unerring guide, gravitation, so long as they continue to be concealed beneath the soil; but as soon as they rise above it, they are, to a considerable extent, under the control of another agent, light. Each inclines in whatever direction it receives the greatest quantity of that fluid, and consequently each avoids, and appears to shun, the shade of every contiguous plant. The old tubers being large, and, under the mode of culture recommended, rather deeply buried in the ground, the young plants in the early part of the summer never suffer from want of moisture, and being abundantly nourished they soon extend themselves in every direction till they meet those of the contiguous rows, which they do not overshadow on account of the width of the intervals.

The stems being abundantly fed, owing to the size of the old tubers, rise from the ground with great strength and luxuriance, support well their foliage, and a larger breadth of this is thus, I think, exposed to the light during the whole season, than under any other mode of culture which I have seen; and as the plants acquire a very large size early in the summer, the tubers, of even very late varieties, arrive at a state of perfect maturity early in the autumn."

Keeping these facts in view, Mr. KNIGHT recommended the adoption of the following rules.

1. *Do not plant later than the beginning of March;* in order that the Potatoes may have as long a period of growth as possible.

2. *Employ whole tubers,* none weighing less than four ounces.

3. *Adjust the distances at which the tubers are planted in the rows, and of the rows themselves according to the usual height of*

the stems. Thus LANKMAN's Potatoe, a tall sort raised some years since in Flanders, was planted in rows four feet apart, with its tubers six inches from centre to centre: and it yielded 18 tons, 14 cwt, 70 lbs. on an acre of ground.

On the other hand the Ash-leaved Kidney Potatoe in which the stems are very short was planted in rows two feet apart, with its tubers nearly in contact with each other; it yielded 24 tons, 6 cwt, 98 lbs. per acre. An amount of produce really enormous if compared with ordinary crops which do not usually average more than 10 or 11 tons an acre.

In his next communication Mr. KNIGHT further illustrated his method by such practical remarks as experience had continued to suggest. Finding that destroying the blossoms of potatoe plants increased the quantity of their tubers, he inferred that sorts which do not blossom are more productive than others, and accordingly recommended such kinds to be cultivated in preference. He mentioned that those varieties which vegetate earliest afford the largest produce, but do not keep so well as less excitable sorts; he advised that varieties with stiff stems capable of sustaining their leaves in a proper position should always be selected; he explained the method of raising seedling Potatoes, and he reported the result of his method in a high and cold situation where the ground was not rich to be, 22 tons, 8 cwt, 64 lbs. of LANKMAN's Potatoe per acre.

In his last communication, Mr. KNIGHT explains the probable cause of failure in obtaining crops corresponding in magnitude with his own, by the fact that exhausted varieties are too often cultivated: it appears from his experiments that old varieties gradually become unproductive; and that vigorous seedlings with very early habits will yield the largest crops. As much as 34 tons, 8 cwt, 107 lbs. are mentioned as the produce per acre of such a kind, and he gives it as his opinion that more than 1000 bushels, or nearly 36 tons, may and will be obtained from an acre of ground.

He adds that he does not find tall growing kinds the most productive; but that they will grow in poorer soil than others; and that he has obtained from soil naturally poor and light and not more highly manured than for Swedish turnips, from 20 to 24 tons of late Potatoes per acre.

This is I believe the substance of the valuable Papers for which the world is indebted to our President.

In the hope of assisting in an enquiry of so much national importance, as the determination of the manner in which the greatest quantity of human or animal food can be obtained from the soil, some experiments were tried in the Garden of the Society in the year 1831, of which I have already had the honour to lay the results before the Society*. These were principally important in regard to the evidence they seemed upon the whole to afford of the accuracy of Mr. KNIGHT's views. It did not however appear, from anything that had resulted from the investigation, what the real difference was between the produce afforded by whole tubers and common sets; and it was accordingly determined that the next trial should be directed to the elucidation of that point; for although *a priori*, one might feel persuaded that whole tubers would yield a greater produce than common sets, yet it was highly desirable that this should be proved by actual experiment, for if it should turn out that tubers are not more productive than sets, it was clear that the cultivator would sustain serious loss by employing them.

Accordingly in the year 1832 five plots of ground of equal size, and as nearly as possible of equal quality, were selected for the growth of five different varieties. One half of each of these plots was planted with whole tubers and the other with sets containing but one eye each; the plants were one foot apart in the rows,

* See page 143 of the present Volume.

and the rows themselves eighteen inches apart. The result was as follows:

Name.		Weight Planted.	When Planted.	Time of coming up.	Length of Stems.	Stems began to turn yellow.	When taken up.	Weight taken up.	Rate of Increase.	Produce per Acre.
		Drams.						Drams.		Ts. cwt. lbs.
Early Manley .	Whole Tubers	8,832	May 5	May 28	2¼ ft.	Aug. 1	Oct. 12	88,576	1:10.028	17 10 4
	Single Eyes	5,184	..	June 2	2 do.	..	..	96,000	1:18.518	18 19 88
Shaw's . .	Whole Tubers	16,576	May 7	May 30	2½ ft.	Aug. 1	Oct. 15	104,960	1: 6.332	20 15 26
	Single Eyes	6,016	..	June 3	2¼ do.	Aug. 12	..	101,120	1:16.808	20 0 4
Red Nosed Kidney	Whole Tubers	16,576	May 7	June 2	3 ft.	Aug. 22	Oct. 16	92,928	1: 5.606	18 7 71
	Single Eyes	4,512	..	June 5	3 do.	Sept. 1	..	89,088	1:19.740	17 12 49
Pink Eyed Scotch	Whole Tubers	10,992	May 8	May 30	3½ ft.	Aug. 23	Oct. 17	115,200	1:10.480	22 15 83
	Single Eyes	4,448	..	June 2	3½ do.	Aug. 31	..	101,632	1:22.848	20 2 7
Champion . .	Whole Tubers	15,408	May 10	June 4	2½ ft.	Aug. 27	Oct. 17	119,808	1: 7.775	23 14 0
	Single Eyes	3,632	..	June 7	3 do.	Sep. 13	..	123,648	1:34.044	24 9 18

From this experiment it appears not only that the rate of increase, that is to say the proportion borne by the crop to the weight planted, is on an average as much in favour of single eyes and against tubers as 3.50 to 1.25, but, also, that the produce per acre is on an average so very nearly equal in either case, that it may be doubted whether there is really any advantage in planting tubers; for the total weight estimated to have been obtained in the five foregoing experiments is,

	Tons.	cwt.	lbs.
Whole Tubers . .	113	2	72
Single Eyes . .	111	3	54

giving a difference in five acres of about two tons, which is hardly more than the difference between the weight of the tubers and sets originally planted.

At the time this experiment was prepared, it was thought advisable also to ascertain what difference in their rate of increase there really is between tubers and eyes, when each set or tuber

has the power of growing undisturbed by its neighbours, and when in consequence the real productiveness of each could be ascertained with the greatest accuracy. In order to make this experiment the more satisfactory, it was determined not to confine it to the five sorts above-mentioned, but to include a considerable number of other varieties, from the average of which it was thought that a conclusion might be safely drawn. I must confess I anticipated that in this case at least the tubers, having full space to develope themselves, would certainly surpass the sets very materially in proportionate productiveness; but the result proved to be altogether the other way; as will be seen.

We selected a piece of ground of quality as nearly uniform as possible; it was divided into four feet squares; and in the centre of each square was planted either a tuber, or a single eye, or a set containing three eyes, or the whole surface of a tuber pared off so as to leave the eyes safe but to remove the centre; a practice which is not uncommon in Scotland. The following table contains the details of the experiment.

Names.		Weight Planted.	Number of Eyes.	When Planted.	Time of coming up.	Length of Stems.	When taken up.	Weight taken up.	Rate of Increase.
		Drams.				ft. in.		lbs. oz.	
1. Early Manley - -	1 Tuber	67.29	8	May 3	June 3	2 6	Oct. 22	4 2	1: 15.69
	1 Eye	30.98	1	..	6	1 6	..	3 12	1: 30.88
	3 Eyes	36.20	3	..	4	1 9	..	4 8	1: 31.81
	Parings	31.81	8	..	4	2 0	..	4 6	1: 35.20
2. Shaw's - - -	1 Tuber	95.08	9	May 3	May 30	2 6	..	7 4	1: 19.18
	1 Eye	24.86	1	..	June 2	3 0	..	11 12	1:121.00
	3 Eyes	32.54	3	..	May 31	3 0	..	9 12	1: 76.71
	Parings	61.07	8	..	..	1 6	..	4 8	1: 18.10
3. Red Nosed Kidney -	1 Tuber	87.77	10	May 3	June 3	2 9	.	6 3	1: 18.01
	1 Eye	26.69	1	..	7	2 3	..	3 2	1: 29.90
	3 Eyes	32.54	3	..	4	2 0	..	3 8	1: 27.53
	Parings	46.44	9	..	May 31	2 0	..	4 4	1: 23.42
4. Pink Eyed Scotch -	1 Tuber	85.94	7	May 3	May 28	2 6	..	1 6	1: 4.09
	1 Eye	30.45	1	..	June 4	2 0	..	4 2	1: 34.70
	3 Eyes	35.20	3	..	4	1 9	..	2 7	1: 17.79
	Parings	57.05	8	..	1	2 0	..	1 11	1: 27.69

Names.		Weight Planted.	Number of Eyes.	When Planted.	Time of coming up.	Length of Stems.	When taken up.	Weight taken up.	Rate of Increase.
		Drams.				ft. in.		lbs. oz.	
5. Champion - -	1 Tuber	93.98	9	May 10	June 7	2 6	Oct. 22	7 6	1:20.08
	1 Eye	44.61	1	—	9	2 6	—	5 9	1:50.40
	3 Eyes	63.83	3	—	8	2 9	—	6 4	1:25.06
	Parings	58.57	13	—	8	2 6	—	6 8	1:28.41
6. Salmon-coloured Kidney - -	1 Tuber	95.45	16	May 3	May 30	4 6	—	15 5	1:41.07
	1 Eye	35.20	1	—	June 4	4 0	—	13 10	1:99.09
	3 Eyes	34.11	3	—	3	4 0	—	14 2	1:10.60
	Parings	51.19	11	—	1	3 6	—	15 8	1:78 68
7. La Divergente - -	1 Tuber	95.81	18	May 3	June 3	3 9	—	17 11	1:45.97
	1 Eye	36.93	1	—	4	3 9	—	15 8	1:10.74
	3 Eyes	40.95	3	—	4	3 9	—	14 2	1:82.29
	Parings	49.37	9	—	1	3 6	—	5 12	1:29.81
8. Lankman's Red -	1 Tuber	78.62	14	May 3	June 2	2 9	—	4 3	1:13.62
	1 Eye	36.57	1	—	4	2 6	—	1 11	1:12.25
	3 Eyes	53.02	3	—	4	2 3	—	2 14	1:13.88
	Parings	54.50	10	—	May 31	2 0	—	2 5	1:19.91
9. Lord Salisbury's Round White -	1 Tuber	92 89	7	May 3	June 2	3 6	—	7 10	1:21.00
	1 Eye	25 59	1	—	4	2 0	—	2 7	1:24.38
	3 Eyes	42.78	3	—	4	1 9	—	4 7	1:26.55
	Parings	39.12	9	—	May 31	2 3	—	6 15	1:45.40
10. à feuilles de Haricot	1 Tuber	114.83	11	May 3	June 2	2 6	—	7 0	1:15.63
	1 Eye	30.45	1	—	4	2 0	—	4 9	1:38.36
	3 Eyes	52.29	3	—	4	2 0	—	5 7	1:26.62
	Parings	42.05	7	—	3	2 0	—	7 6	1:44.90
11. Bread-fruit - -	1 Tuber	100.20	13	May 3	May 30	3 6	—	7 3	1:18.36
	1 Eye	35.94	1	—	June 3	2 9	—	8 2	1:57.87
	3 Eyes	48,63	3	—	2	2 6	—	9 1	1:47.70
	Parings	65.10	10	—	May 31	1 6	—	4 4	1:16.71
12. Downton Yam -	1 Tuber	97.27	11	May 3	June 6	4 6	—	5 7	1:14.31
	1 Eye	41.23	1	—	5	4 0	—	3 10	1:22.51
	3 Eyes	47.57	3	—	5	4 0	—	5 9	1:29.17
	Parings	46.07	11	—	4	3 6	—	6 15	1:38.55
13. Knight's No. 2 -	1 Tuber	115.56	15	May 3	June 7	3 3	—	3 13	1: 8.45
	1 Eye	33.01	1	—	12	3 6	—	5 13	1:45.08
	3 Eyes	65.10	3	—	9	3 6	—	8 10	1:33.92
	Parings	70.68	16	—	8	3 0	—	3 5	1:12.00
14. Knight's No. 17 -	1 Tuber	103.59	9	May 3	June 3	4 9	—	12 4	1:30.29
	1 Eye	28.90	1	—	7	4 6	—	8 1	1:71.42
	3 Eyes	44.30	3	—	4	4 6	—	1 14	1:68.62
	Parings	69.22	15	—	3	4 6	—	2 4	1:45.31
15. Knight's No. 12 -	1 Tuber	76.44	12	May 3	June 4	2 0	—	1 7	1: 4.81
	1 Eye	35.57	1	—	6	1 6	—	0 8	1: 3.59
	3 Eyes	50.84	3	—	4	1 6	—	0 10	1: 3.14
	Parings	65.10	14	—	3	2 6	—	5 12	1:22.61

Names.		Weight Planted.	Number of Eyes.	When Planted.	Time of coming up.	Length of Stems.	When taken up.	Weight taken up.	Rate of Increase.
		Drams.				ft. in.		lbs. oz.	
16. Knight's No. 20 -	1 Tuber	82.28	18	May 3	June 6	2 6	Oct 22	3 7	1:10.69
	1 Eye	26.69	1	-	8	1 6	-	0 9	1: 5.39
	3 Eyes	49.37	3	-	7	1 6	-	0 14	1: 4.53
	Parings	56.95	17	-	4	2 6	-	8 15	1:35.96
17. Knight's No. 21 -	1 Tuber	112.64	14	May 3	June10	failed	-		
	1 Eye	31.18	1	-	5	4 0	-	4 5	1:35.40
	3 Eyes	53.75	3	-	4	4 0	-	3 8	1:16.67
	Parings	90.70	10	-	4	3 9	-	9 13	1:27.70
18. Knight's No. 24 -	1 Tuber	99.47	11	May 3	June 6	3 3	-	7 12	1:15.84
	1 Eye	33.37	1	-	8	2 9	-	5 14	1:45.07
	3 Eyes	52.66	3	-	9	2 6	-	6 12	1:32.81
	Parings	62.17	8	-	6	2 6	-	3 2	1:12.87
19. Purple Kidney -	1 Tuber	111.54	15	May 3	June 8	3 0	-	6 10	1:13.00
	1 Eye	33.37	1	-	8	2 9	-	8 1	1:57.90
	3 Eyes	39.13	3	-	9	2 6	-	4 14	1:31.90
	Parings	43.88	10	-	9	2 6	-	4 12	1:27.71
20. Schair - - -	1 Tuber	85.50	11	May 3	May30	2 6	-	7 15	1:23.39
	1 Eye	27.79	1	-	June21	1 9	-	1 9	1:14.39
	3 Eyes	44.61	3	-	20	2 6	-	3 4	1:18.69
	Parings	54.50	10	-	May31	1 6	-	1 11	1: 8.99
21. Ld. Dunmore's Kidney	1 Tuber	113.73	10	May 10	June11	2 0	-	5 12	1:12.94
	1 Eye	32.29	1	-	8	1 9	-	4 0	1:31.71
	3 Eyes	49.36	3	-	8	1 9	-	4 10	1:64.00
	Parings	54.13	10	-	7	1 9	-	6 8	1:30.74

Now if we omit Nos. 4, 13, 15, 16, the growth of which seems to have been accidentally interfered with by some unknown cause, and No. 17 the tuber of which did not grow, we shall find that the rate of produce is in 13 cases in 16, in favour of the single eyes as compared with tubers; in 9 cases in 16 in favour of single eyes as compared with sets containing three eyes; and in 10 cases in 16, in favour of single eyes as compared with parings; or, if we consider the results of the whole sixteen experiments as being but one experiment, we shall find their proportions expressed by the following figures.

Whole Tubers .	338.38	or	2
Single Eyes . .	717.87	..	11
Three Eyes . .	613.94	..	5
Parings . .	504.69	..	4

} nearly.

This result was further confirmed by another circumstance. In the same part of the garden in which the first experiment was carried on, and under exactly the same conditions of soil, exposure and times of planting, except that the rows of tubers were four feet apart instead of eighteen inches, and the plants six inches apart in the rows; and where consequently the tubers had full room to grow, it was found that the rate of increase was still in favour of sets with single eyes, as will appear from the following table.

Name.		Weight Planted.	When Planted.	Time of coming up.	Length of Stems.	Stems began to turn yellow.	When taken up.	Weight taken up.	Rate of Increase.	Produce per Acre.
		Drams.						Drams.		Ts. cwt. lbs.
Early Manley .	Whole Tubers	6,048	May 5	May 28	2½ ft.	Aug. 5	Oct. 12	81,920	1:13.544	16 4 9
	Single Eyes	5,184	..	June 2	2 do.	Aug. 1	..	96,000	1:18.518	18 19 88
Shaw's . .	Whole Tubers	12,436	May 7	May 29	2½ ft.	Aug. 12	Oct. 15	96,576	1: 7.757	19 0 89
	Single Eyes	6,016	..	June 3	2¼ do.	..	..	101,120	1:16.808	20 0 4
Red Nosed Kidney	Whole Tubers	8,576	May 7	June 4	3 ft.	Aug. 26	Oct. 16	65,536	1: 7.641	12 19 30
	Single Eyes	4,512	..	June 5	3 do.	Sept. 1	..	89,088	1:19.740	17 12 49
Pink Eyed Scotch	Whole Tubers	8,080	May 8	May 31	3 ft.	Aug. 26	Oct. 17	89,344	1:11.057	17 13 51
	Single Eyes	4,448	..	June 2	3½ do.	Aug. 31	..	101,632	1:22.848	20 2 7
Champion . .	Whole Tubers	10,240	May 10	June 4	2½ ft.	Sept. 6	Oct. 17	107,264	1:10.476	21 4 39
	Single Eyes	3,632	..	June 7	3 do.	Sep. 13	..	123,648	1:34.044	24 9 18

Here we also find that the produce per acre is in favour of sets with single eyes; but this arises from the tubers having been planted too far apart, so that at least a quarter of the ground was lost. But, making fair allowance for this, the crop obtained from single eyes was fully as good as that from tubers in four cases out of five, or with the single exception of SHAW's variety.

It would therefore appear, if these experiments can be deemed conclusive, and I confess I can discover no probable source of error, that the opinion which has been entertained of the superior productiveness of tubers over sets is unfounded, a conclusion to

which Sir GEORGE MACKENZIE has also come from experiments made by him in Ross-shire.*

I had hoped to have added to this communication the particulars of some further experiments upon the same subject, which have been conducted in the Garden, with reference to other points of this interesting enquiry, but they were so much interfered with by the unusual dryness of the season of 1833, that I do not think it safe to lay them before the public until the experience of another year shall have satisfied me of their correctness.

Observations upon the preceding Paper by the PRESIDENT.

I believe that I can, to some extent, account for the discrepancy of the results of our experiments in the culture of the Potatoe; and I feel anxious to do so, because very ample experience has led me to the conclusion, that some of the measures, which the above results appear to sanction, will, in a very large majority of cases, lead to disappointment and loss. The Board of Agriculture some years ago, recommended the practice of planting very small portions of the tubers of Potatoes, with single eyes, and that parings only should, in some cases, be employed. I, at that time, gave the plans they recommended a long and perfectly fair trial, but I generally obtained very light crops; and in the gardens of several peasants, which I examined, the produce in all was but small and in some it was scarcely worth collecting, and within a very few years these modes of culture were wholly discontinued. I found that when the ground was rich, and the feeble plant, which sprang from a small portion of a tuber, could find abundant food imme-

* "By the experiments I have made I find that the Potatoes of different sets which you sent me, and some of my own, produce decidedly better from sets than from whole Potatoes."—*Letter dated Coul, near Dingwell, Ross-shire, Dec.* 10, 1833.

diately in the vicinity of the stem, when that first appeared above the soil, the crop was sometimes good, provided the varieties possessed luxuriant habits of growth, and rather early habits of maturity, and the young plants were not injured by frost; but I never obtained a great crop, and in one case, in which I planted one portion of the same ground, previously rather poor pasture, with whole tubers, each weighing at least four ounces, and another portion of similar extent with small portions of tubers, I obtained a heavy crop under the first named mode of culture, and scarcely any crop whatever under the last named. These results, I had subsequently strong reasons to believe, arose from the circumstance of the whole tubers having afforded sufficient organisable matter, which small cuttings would not do, to form roots through every part of the soil, early in the summer. I consequently planted in similar soil, as to thickness, in the following season, some whole tubers, and some small portions in two contiguous rows, and I dug up the whole of both rows as soon as the points of their stems became visible above the soil; when I found the roots which had been emitted from the plants, which sprang from the whole tubers were much more numerous and of much greater length; and I did not entertain any doubt but that the results, if I had not destroyed the plants would have been similar to those of the preceding year.

From the results of the preceding, and a very great variety of similar experiments, I came to the conclusion, that the heaviest crops of Potatoes, and those most profitable to the grower, will, in most soils, and seasons, be obtained from tubers of considerable weight, and I have preferred whole tubers because I have found those least subject to decay in wet and cold springs. But I think it extremely probable, that wherever the soil is very dry, so as to preclude all grounds of fear of the cuttings decaying, or the plantation take place late in spring, more regular and better rows of plants might be obtained from single eyes placed at short distances,

with a moderately large portion of the matter of the tuber, than the whole tubers, particularly if the form of these be globular: for in such case the buds, which naturally vegetate first, and most strongly, will be not unfrequently on the lower sides of the tubers; and whenever this occurs, numerous and feeble stems will be produced, with injurious consequences.

I have in former Communications stated that in rich soils and under garden and spade culture varieties of rather early habits, and of rather dwarfish growth, will always afford the heaviest crops, and be cultivated in the garden with most advantage. The whole of those varieties, which I sent the Society three years ago, possess great vigour of growth, and late habits; and are fitted only for field culture, and used for the table late in winter and in spring. I now possess a great many new varieties of very early habits, and some of them I believe will prove very productive; and of those I propose to send samples in autumn.

Benthamia fragifera.

Mills Drake. del.

LVI. *On Benthamia fragifera, and the Climate of Mussooree its native country.* *By* J. F. Royle, *Esq. F. L. and G. S. M. A. R. S. &c. &c.*

Read May 6, 1834.

This very showy and ornamental plant, whether seen in the time of inflorescence or when in fruit, being a highly desirable acquisition to the shrubberies of England, for which they are indebted to the Himalaya Mountains, it becomes an interesting point to ascertain whether it is likely to withstand the cold and changes of our English climate. The most satisfactory mode of determining this, being to ascertain the place where a plant naturally grows, the plants with which it is associated and the climate to which they are all subjected, I purpose on the present occasion entering into a few details, which may perhaps be useful in the cultivation of this as well as of many other plants from the same regions; for it is to be hoped that a commencement only has been made to the introduction of the plants of the Himalaya into the gardens of England.

Benthamia fragifera, a shrub named by Dr. Lindley in honour of George Bentham, Esq. the Secretary of the Horticultural Society, has its specific name, "strawberry-bearing," from the large globular reddish fruit which at a little distance offers considerable resemblance to the fruit of the Strawberry; on which account, by travellers in the Himalaya, it is frequently called the Strawberry tree; the native name in the part of the Hills I am acquainted with, is *thurmul*. The fruit is eaten by the Hill people, and though without flavour has not an unpleasant taste.

This plant was first described by Dr. Wallich under the name

of Cornus capitata in the Flora Indica, and figured by him in plate 214 of his splendid work, Plantæ Asiaticæ Rariores; the fruit being represented only in an unripe state. It was found by him on the top of Chundraghiry, a mountain of Nipal, and was subsequently sent him from the mountains of Kamaon and Sirmore. The plant is described as being about the size of an apple-tree, flowering in June, and ripening its fruit in October. It was no doubt from one of these localities that the seed was obtained by Sir Anthony Buller, from which plants were raised in 1825 in the garden of J. H. Tremayne, Esq. at Heligan in Cornwall, where they are described as being hardy evergreens, flowering in great profusion in summer and ripening their fruit in the autumn. From a drawing and specimens of the fruit sent from this garden a figure of both the flower and fruit was given in the Botanical Register; where, in consequence of the number of points in which both differ from the ordinary species of Cornus, it was determined to constitute the new genus Benthamia.

I have found this shrub in several situations in the tract of the Himalayas which extends from the Ganges to the Sutlej river, or from N. lat. 30° to $31\frac{1}{2}°$, but especially on the Mussooree and Choor mountains, and in the neighbourhood of Kotgurh, at elevations of from 6500 to 8000 feet, flowering in May and June, and ripening its fruit in October. At the latter heights it is seen in conjunction with species of Sorbus, Cotoneaster, and Cratægus, with Quercus elastica, Thymus Serpyllum, and other plants found only where there is considerable cold in winter and moderate heat in summer.

Among the places which have been mentioned as localities of Benthamia fragifera, Mussooree is that with which I am best acquainted, as being the nearest point, though fifty miles distant, from the Botanic Garden at Saharunpore, where there was a moderate temperature; an experimental nursery was established for the intro-

duction of European plants, and the gradual acclimatizing of species from the colder parts of the mountains. Hither also for several years, Europeans have been in the habit of resorting from March to October, to escape from the hot weather and rains of the plains, or from the effects of diseases generally induced by residence in a hot climate. It is therefore on many accounts interesting to ascertain the nature of the climate; and with reference to the objects of this Society, the information will be useful for the cultivation of many other plants from similar localities, besides that immediately in question. It should however be premised, that as Mussooree is the lowest level at which Benthamia is found in that latitude, in any account of its climate, we shall not see the minimum of cold it is capable of bearing, but only the maximum of heat in which it is naturally found.

Mussooree in lat. 30½ and long. 78° E. forms part of the range which runs in a N. E. direction between the Ganges and Jumna rivers, rising immediately above the Deyra valley, which is separated from the plains by a lower range of mountains, to an elevation of 6500 to 7000, though Lundour is 7500 and other parts of the same range as high as 9000 feet.

The range of the thermometer is about 53°, from the maximum 80° occurring in May, to the minimum 27° in February, with an annual mean temperature of about 56°; the seasons may be divided into winter, summer with a short spring, rainy season and autumn. The climate is remarkable for its equability of temperature from night to day, from day to day, and also in a great measure from month to month. The nights are generally mild and still, and as this stillness continues until 9 or 10 in the morning, the heat feels more oppressive from 8 to 10 than at any other time of the day; and the maximum of temperature is nearly attained at the latter hour, after which all accumulation of heat is prevented by the cooling effects of the breeze which ascends from the vallies. The

transition to the rains makes but little difference in the temperature, but the moisture is considerable. At the conclusion of the rainy season the sky is clear and serene, and the air delightfully mild.

From the middle of November the weather becomes cold; in December storms occur and snow falls, but seldom lies on the top of the range for more than a few days, though in sheltered places it is of course longer in becoming melted. In January and February the weather is steadily cold, and though the climate is usually extremely regular in the increase and decrease of temperature, the only great and sudden changes take place in the latter month; for, analogous to what so frequently takes place in England, a severe snow storm sometimes occurs even after returning warmth has induced some revival of vegetation. In two or three years, the severest snow storms of the season, and in one year the minimum of temperature 27° occurred about the middle of February. In another year even on the 4th of March, though January is altogether the coldest month. The mean temperature of the winter months may be considered about 45°. The thermometer is frequently near, but seldom below the freezing point, and in the middle of the day generally about 55°.

In Europe the revival of nature takes place in that month of which the mean temperature reaches 42° or 46°, but at the Mussooree probably from the milder winter, the heat required is greater, as the general reaction in vegetation takes place about the beginning or middle of March, which may be considered the spring month, and its temperature 53° being 8° above that of February, is more than is sufficient for the developement of vegetation in Europe, where the analogous increase which amounts to 10° or 12° takes place between April and May. The similarity in the equalizing effects of the air on temperature to what is produced by the sea is here observable, for it is remarked by Humboldt that the increase of the vernal temperature is small (scarcely 7°), and equally pro-

longed wherever there is an insular climate. Here the addition of temperature to that of its immediate predecessor in the months March, April and May, is 8°, 6° and 6° of Fahrenheit's thermometer. Towards the conclusion of March the atmosphere commences becoming very dry.*

At this season, or towards the end of it, only a few plants are in flower, as Berberis napalensis, Daphne cannabina, Coriaria napalensis and a few others; among which the Rhododendron arboreum may be mentioned, as it comes in early and continues long in flower.

The months of April and May to the middle of June may be considered the summer months, the heat is never very great, nor is the decrease of temperature ever considerable; I never found a thermometer, hung out all day in the open air and in the shade, rise higher than 80° nor fall below 41°. As the minimum of temperature, as has been observed, does not take place during the coldest month, but later in the year when the occurrence of a storm during a drier state of the atmosphere, adding cold to dryness causes considerable depression of the thermometer, so the maximum of temperature does not occur in the months of June and July when the monthly means are highest, but in May when the general dryness is greatest; though the maximum dryness, in the year when I made the observations, amounting to a difference of $22\frac{1}{2}°$ between the dry and moist bulb thermometers, occurred on the 18th April. The mean temperature 63.5, of these months, is sufficiently high to promote the healthful growth of plants and the ripening of the seeds of some; though the continuance is too short before the accession of the rainy season to allow of the ripening of all, or of the fruit trees which have been introduced. The dryness also of

* The dryness and moisture of the different seasons has been particularly noted, as little attention is in general paid to the subject, though they are as important elements as temperature in the consideration of climate, when we wish to acclimate either the animal or vegetable productions of a country.

the atmosphere during this period is greater than at any other time of the year, as the difference between a dry and moist bulb thermometer amounts in the mornings and evenings to from 10° to 15°, and in the day time from 12° to 20°. Owing therefore to this dryness as well as to the clearness of the atmosphere during this season, the sun's rays have full power during the day, when the maximum of temperature is attained, but the same state continuing during night, considerable radiation of caloric takes place and cold is produced; hence, as occurs in cold and temperate latitudes, there is a greater range of the thermometer than in other seasons. We therefore find in the Flora a resemblance to that of temperate regions, and among the plants which are in flower at this season, are most of those which will be afterwards mentioned as forming the flora of this altitude, and belonging almost entirely to European genera. Several of the fruits also ripen towards the latter part of this period, as apricots, apples, and Myrica sapida near the villages, and early in the season strawberries and brambles.

The rainy season commences about the middle of June and continues to the middle of September, the atmosphere is frequently enveloped in clouds, which generally clear away in the evening. Showers of rain fall almost every day, and a continual degree of moisture is maintained, which would become excessive were it not for the constant interchange of air which takes place on account of the difference of temperature between the bases and tops of these mountains. The moisture of these rainy months prevents the excessive increase of temperature, which would otherwise necessarily take place in the months of June, July and August; while the cloudiness prevents the too free radiation of heat during night, and thus checks the production of excessive cold; uniformity of temperature is, therefore, produced, a result assisted by the extrication of heat during the passage of water from its aeriform to its liquid state, as well also, as from the condensation of strata of air

descending to a lower level than they had occupied during the day. The mean temperature of the rainy months is 66° or the same as that of August, which differs only $1\frac{1}{2}$° from the warmest month June 67.5, 1° from July 67, $2\frac{3}{4}$ from September the coldest month 63.25. The range of the thermometer during the whole of the rainy months is only about 10° or 12°. The difference between the dry and moist bulb thermometer during this season, is seldom so much as 5° in the mornings, but generally from 1° to 3° in the mornings and evenings, and 2° to 6° sometimes 8° in the day time.

During this season many plants allied to tropical families make their appearance, and the branches of the Oaks and Rhododendrons become covered with mosses and ferns, and in the thick coating of the former, plants of many different families are produced, as Orchideæ, Scitamineæ, a species of Thalictrum, and of Convallaria. The ground is at the same time covered with plants of European families, as well with those belonging to such tropical families as have been mentioned, as well as to Didymocarpeæ, Melastomaceæ, and plants requiring moist situations as Drosera, Begonia; a sure indication of the moderation as well as moisture of the climate, which can maintain at the same time plants requiring such opposite climates.

At the conclusion of the rainy season, or in what may be called the autumn, the climate is most delightful, the air is extremely mild, still and clear. The effects of the last may be observed in the more rapid decreasing temperature, which had during the cloudy season remained so uniform, and the dryness may be observed in the difference between the dry and moist bulbed thermometer, amounting in the mornings sometimes to 7°, in the day time from 8° to 15°, and in the evenings to 4° or 6°.

The Meteorological phenomena observed in the years 1827 and 1828, have been reduced to a tabular form, which will give a good general idea of the nature of the climate, as they nearly correspond

with those observed in subsequent years; but the peculiarity of seasons, their greater dryness and moisture, later accession of the rainy seasons, or the total absence of a snow storm in some years, will of course, here, as elsewhere, modify the temperature of particular months.

RESULTS OF METEOROLOGICAL OBSERVATIONS AT MUSSOOREE.

	Means of all the Observations.	Maxima during each Month.	Minima during each Month.	Means of Maxima and Minima.	Increase and Decrease of each Month.
		°	°	°	°
January	42.45	51.5	34.5	43	—2.55
February	45.42	63	27	45	+2.97
March	53.63	69	37	53	+8.21
April	59.83	77	41	59	+6.2
May	66.01	78	41	59	+6.18
June	67.12	74	61	67.5	+1.11
July	67.35	71	63	67.5	—0.23
August	66.43	69	63	66	—0.92
September	64.04	69.5	57	63.25	—2.39
October	57.25	66.5	48	57.25	—6.79
November	50	57	48	52.5	—7.25
December	45	55	29	42	—5.
Mean Temperature of the Year	57.04			56.5	Mean Temperature of the Year from the monthly Maxima and Minima.

Having obtained a general idea of the nature of the climate in the Himalaya Mountains at an elevation of 6,700 feet, the next point to ascertain is, the vegetation naturally found in conjunction with it. The arboreous and shrubby vegetation being that which is alone subjected to the vicissitudes of all the seasons, is the most interesting in the point in which we wish at present to view it; the probability of the varied productions of these mountains being suited to the open air of gardens in England.

Among the large trees may be mentioned species of oak, elm, maple, hornbeam, the common walnut, and the magnificent rhodo-

dendron arboreum, which, when in full flower with almost every little branch terminated with a bunch of its large and showy scarlet flowers, forms one of the most splendid objects in nature; but this is not a tree which is found at great elevations, where the climate is more severe. Among the smaller trees may be mentioned species of Cornus, Ilex, Evonymus, Rhamnus, Viburnum, Buxus, Andromeda, Laurel, Mulberry and Willow. The fruit-trees growing wild, but producing very inferior fruit, are the Peach, Cherry, Pear and Pomegranate; in the villages, however, good Apricots and Apples are cultivated. Barberries, Brambles, Way-faring trees and Coriaria napalensis afford smaller fruit, much eaten by the inhabitants of the hills. Of the smaller shrubs may be mentioned, species of Berberis, Rubus, Rosa, Spiræa, Clematis, Hydrangea and Ivy. Species of Abelia, Stauntonia, Deutzia and Eurya, are interesting, as showing the resemblance in the flora of the Himalayas to that of China and Japan. Abelia triflora, figured by Dr. Wallich, Pl. As. Rar. 15. is particularly desirable to be introduced into English gardens from the delightful fragrance of its flowers.

Among the herbaceous plants are many species of the genera which are most common in European countries, with the addition of others allied to tropical genera, but the existence of these has been accounted for from the peculiarity of the climate during the rainy season, while the trees and shrubs being subject to the vicissitudes of all seasons, make the probability greater of their succeeding in the climate of England, where the changes are certainly more sudden, but perhaps not greater than that experienced in the Himalaya, from the mild equality of the rainy months to the sharp and cutting winds of the winter of these mountains. As specimens of a few of the genera may be mentioned, Anemone, Clematis, Thalictrum, Aquilegia, Delphinium, Primula, Viola, Saxifraga, Iris, Valeriana, Gentiana, Galium, Sedum, Circæa, Potentilla, Juncus, Arum, Pedicularis, Convallaria, Paris, Lilium, Allium, Salvia, Nepeta.

Of species identical with those found in other parts of the world, we may mention Leontodon Taraxacum, Origanum vulgare, Prunella vulgaris, Galium Aparine, Thlaspi arvensis, Capsella Bursa Pastoris, Phrynium leptostachyum, as well as Ophiopogon spicatus and japonicus.

As further indications of the nature of the climate, and the vegetation it is capable of supporting, it may be mentioned, that many plants from the higher elevation of the Himalaya were introduced; and might be seen growing luxuriantly by the side of fruit trees from Cashmere, as well as of an apple-tree from Liverpool. This, the only one which survived the long journey to the upper provinces of India, was by being transferred to the hills, saved from the heat and rains of the plains of India, which are found to be so destructive to European plants. It may not be uninteresting to remark that this one apple-tree cost upward of £70. before it was planted in its present situation, where however it has afforded several grafts. Most of the European kitchen garden vegetables were also sown on the Mussooree Range from February to the end of July, and by attending to a proper succession of crops, vegetables for the table were obtained from May till October. It may further be added that many of the common English garden flowers, as the sweet pea, mignonette, snap-dragon and others, as well as asters and centaureas from Cashmere, were perfectly at home in the same situation.

In confirmation of the view here given of the probability of an immense proportion of Himalayan plants being suited to the climate of an English garden and shrubbery, it may be mentioned that several are already perfectly naturalized in England. Of these may be instanced the several Himalayan Pines and Rhododendrons, with several species of Pyrus, Cotoneaster, Cratægus, Rosa, Berberis, Potentilla, Anemone, Clematis, and others. The only hindrance to the extension of the list is the difficulty of procuring plants or

seeds in a vegetative state, as the distance to be traversed is enormous, and the variety of climates to be undergone considerable, as well in the plains of India, as in having twice to cross the line. But it is hoped that when the navigation of the Indus is freely opened, great facilities will exist for transporting the productions of the Himalaya to the shores of Europe, as by leaving their native mountains before the winter commences, they might be conveyed down the Indus and up the Red Sea, and reach a temperate climate without ever being subjected to any excessive degree of heat.

In conclusion, it is only necessary to add, that the soil in which these plants are produced is very varied, but produced chiefly from the decomposition of the primary rocks, as Gneiss, Mica and Clay slates, with occasionally an addition of limestone rock, and generally the presence of decayed vegetable matter. At Mussooree the substratum is a good clayey loam, but the surface is black coloured soil from the admixture of much decayed vegetable matter, and the vegetation very luxuriant, as every where in these mountains where limestone is the prevalent rock. It may also be mentioned that I have always found it preferable in transplanting these plants to place them rather among other plants, where there is some shade and shelter (but not so much as to impede the circulation of air, or the growth of the plant) rather than to expose them to the vicissitudes of an exposed situation. This measure seems to be chiefly useful in producing a greater equality both of temperature and of moisture, as the sun's rays have less power in heating and drying up the soil during the day, and there is less free radiation, and of course a smaller degree of cold during night, while the soil is kept more uniformly moist from being less exposed to the sun as well as to drying winds, and from some portion of moisture being always communicated to the atmosphere by the neighbouring plants.

LVII. *Observations and Discoveries connected with the Culture of Melons.* *By* G. J. Towers, *Esq. C. M. H. S.*

Read December 3, 1833.

I had the honour to address the Horticultural Society of London, upon some facts of considerable importance which had excited my notice in cultivating a plant of the Striped Housainee Melon, last summer. The paper was read at the Meeting of the 20th of August; but as subsequent observation has elicited a variety of additional facts of great interest, I feel called upon to embody my remarks into one article and to forward it to the Secretary without delay, in the hope that my experience may lead to minute investigation and to very satisfactory results.

A small stove, the angle of the roof of which was about 26 degrees, I had found, in the year 1832, to be well adapted to the cultivation of the Persian tribe of Melons: in this stove I fruited the fine specimen of the Striped Housainee, which weighed 6lbs. 5ozs., and was sent to the Society at the close of August. It was furnished with a pit, designed originally to contain a bed of oak-leaves, but which, latterly, was converted into an air-chamber, covered by a platform of boards, supporting a bed of light vegetable and sandy earth. The pit was heated on three sides by a flue, which formed the basis of its wall and reached as high as the platform of the air-chamber; so that the bed of earth was altogether above the upper surface of the flue: it however received the heat of the air underneath, and, consequently, the temperature of the bed of earth averaged from 72 to 80 degrees, as long as fires were kept up; but subsequently, the earth, without the aid of fire-heat, was cooled down below 70

degrees. The upper surface of the flue was external of the pit wall, one side only serving to heat the air-chamber, while the other side and the covering tiles were wholly *without* the pit and afforded heat to the atmosphere of the house. These remarks, though apparently irrelevant, are necessary, because they apply particularly to the main leading facts of the experiment to be now re-capitulated. I premise only that the soil of the bed was not prepared for melons at all: I had other objects in view; but as I had a few plants growing and wished to fruit them, I removed them from their pots and placed them in the bed of earth *within* 4 *or* 6 *inches* of the wall of the pit. One of these plants was a seedling of the Striped Housainee Melon: it was planted at one end of the pit, about 6 inches *above* the top of the *inner* wall of the flue, from which it was separated by 4 inches of brick-work. Upon the top of the flue, very near to this plant, a small brick cistern had been constructed; it was intended for the sole purpose of containing a few quarts of water to afford evaporation. One side of this cistern was the wall of the pit, and every joint was rendered water-tight by means of Parker's cement. The routine of culture was observed, and nothing of moment occurred till about the first week in July, when *roots* of some kind were distinctly observed to have passed into the water of the cistern and *through* one of the mortar joints of the wall. The progress of these roots was carefully watched; and although fires were no longer used regularly, the water was constantly renewed. On the 19th of July, several decisive bundles of these roots had protruded and assumed the form termed "the fox-tail root;" they increased rapidly, extended across the cistern, and ramified so, as almost to fill it. The Melon plant grew; a fruit, (the only one on it) swelled regularly and was very healthy. It was distinctly ascertained, by removing the soil and tracing the course of the roots, that they had taken the direction of the wall; and that one or more radical processes had entered *that wall,* passed through a mortar-joint, pierced

its covering of cement, and entered the cistern about an inch below the usual surface of the water.

About the period when the Melon became ripe, I had occasion to alter the arrangements of my stove. But just before that period, I took off one of the bundles of water-roots, enclosed them in a phial of water and forwarded them with a paper containing a recital of the facts detailed above. The subsequent remarks are in addition to those already communicated; and they not only bear, I conceive, upon the experiment, but tend to throw additional light upon the habits and temperament of not the Melon solely, but also upon those of another species of the genus *cucumis*.

Having ascertained, beyond a doubt, that the Melon plant would continue in health and bring its fruit to maturity, although a considerable part of its roots was, night and day, immersed in water, I resolved to try what might be the consequence of beginning the culture of the plant in water alone, without the aid of any soil whatsoever. I took off a small *cutting* at a joint, and also a single full-grown leaf: the *cutting* was of three joints and about 4 inches long; the leaf had its stalk entire, but was without the vestige of a bud. I placed both in a phial of clear water, side by side, and plunged that in a leaf-bed, the heat of which averaged 72 to 75 degrees. In three or four days, granulations of pearly, cellular matter protruded from the lower surfaces, but by far more copiously from the leaf: in fact the whole of the immersed *leaf-stalk* swelled so much that the epidermis burst in several places, in consequence of the great bulk of granular matter formed within it. From the cracks, the same pearly granulations were sent forth, and from these, at the end of the stalk, white roots shortly after proceeded. In a few days more, the *cutting* emitted roots from similar processes; and these grew to such an extent, that I was obliged to break the phial in order to withdraw the two subjects. While these experiments were pursued, another cutting had emitted roots in pure water; and this young

plant I transferred into a pot of light earth, to which the roots immediately accommodated themselves; for the plant did not droop for an hour, but grew well, and was shortly removed to another pot, in which it continues, and is this day (October 5th) nearly two feet high.

This young plant has, from the early period of its removal to a pot, been furnished with laterals, all bearing the germs of flowers and fruit; but the lateness of the season precludes the expectation of a crop. In order to obtain as many facts as possible, I employed cuttings of the shoots of cucumber plants growing in a bed in the open air; and in one instance, I took a *single leaf* only. Roots were protruded as freely from *shoot* and *leaf* as from those of the melon; and I have now by me a pot wherein there is a healthy cucumber plant that, with its first shoot, showed a young fruit an inch in length: a rooted leaf is in the same pot, but has not as yet produced any appearance of a shoot.

From the various experiments adverted to, and others that I have undertaken, I am satisfied that the following facts are established.

First.—That the melon will protrude roots into water, which will ramify therein most abundantly: that they will not rot or become inert in water; and that, so far from the melon plant becoming diseased by this fluid medium, the foliage will remain healthy and in full activity, and the fruit attain to perfect maturity.

Second.—That cuttings of the melon and cucumber plants, also single leaves, will strike speedily and almost with certainty in pure water, and may be removed into soil with safety; in which, if the quality be appropriate, the roots will strike without loss of time. The heat need not exceed 70 degrees; perhaps less would be sufficient. Although *leaves* will strike root, I am not as yet in possession of facts to prove that germs will be produced from rooted leaves. The melon leaf, in fact, perished; not, however, in

consequence of being placed in *earth*, but because I removed it to another glass vessel in which there was a weak solution of nitre and camphor: these stimulants appeared to be fatal to the roots in a very short period.

Third.—The *water*, wherein the young plants produced roots and remained for two or three weeks, continued colourless, clear and perfectly *sweet*. It is well known that if flowers or small shoots of shrubs be placed in water, a fetid odour is quickly discernible, the fluid becomes foul and tainted. In the phial containing the rooted and growing plant, although plunged in a bed of leaves, the temperature of which was nearly 75 degrees, no taint or flavour was to be perceived. Thus the vital principle of the plant either prevented the formation or caused the absorption of any offensive matters and kept the fluid in a state of perfect purity. Above a week has now elapsed since I poured into a phial a considerable portion of the water from one of the growing plants; it is now fresh and free from taint. The phial was corked and I shall continue to observe the fluid in order to ascertain how long it will remain insipid and void of offensive odour.

One closing remark ought to be made. As I found that the young roots were perfectly *white* as long as they remained in pure water and were in great health and vigour, although the green herb of the plant did not proportionably increase, I removed a plant from the water and inserted it into a larger phial containing a weak, but somewhat coloured, infusion of semi-decayed animal manure mixed up with portions of straw. I plunged the vessel into a moderate heat, in expectation that the roots might act upon the matter held in solution. A few days have elapsed; but, as yet, I have not noticed the absorption of the colouring matter; the roots have lost their pearly whiteness and appear to become more flaccid. In the present state of the experiment, I cannot be assured whether the plant will grow more freely in *manured* than it did in *pure* water;

but I begin to suspect that the reverse will prove to be the fact, and that solutions of manuring substances will be found to be at least of doubtful utility.

I regret that the advanced state of the season, when my first observation led me to enter upon my course of experiments, precludes the hope of being now able to bring them to any practical termination. I trust, however, that this communication will pave the way to many well conducted experiments in the large way, and lead to the discovery of a more effectual method of cultivating plants of the melon tribe than the one generally adopted. The history of the Persian varieties of the melon proves that the proximity of water to the roots is not inimical to the growth and health of the plant. My experiments have gone further; and I little doubt that every variety of melon and every species of *cucumis* may be propagated freely, and with the utmost speed, by the agency of pure water.

Note by the Secretary.

With reference to the foregoing paper, it is necessary to remark that there is nothing absolutely new in the discovery that the Melon is a plant of amphibious habits. This has been long known not only from the Persian practice of growing Melons on banks of earth between ditches filled with water, but also from the reports of Mr. Moorcroft upon the floating Melon beds in the lakes of the valley of Cashmere. The object of the Council in publishing Mr. Towers's paper is merely to direct attention to this circumstance, by means of the observations of its ingenious author.

LVIII. *On the Management of Bark Beds.* *By Mr.* John Jackson.

Read February 18, 1834.

Sir,

Although there are many excellent plans laid down by the most eminent gardeners, for the culture of the Pine Apple, I presume to hope that what I am about to say upon the management of the Bark-bed, will be found of some utility.

I have generally had my Bark-beds to turn and renew only once in twelve or fourteen months; instead of three or four times a year. My plan is to have the bed riddled over when I turn my pit, and I then add as much fresh tan as is requisite; I further have about a cart-load of fresh tan, that has been well *fermented with yeast* for about three weeks or a month beforehand. I generally put from five to ten pounds of yeast into the above cart-load of tan, observing to keep it in a good shed or any other covered place till the great fermentation is over, and then I mix it up in a regular manner all over my bark-bed. I never tread the bed hard down; I only level it, and put upon the top of it as much tan-dust as I can easily plunge my Pines into. Care, however, should be taken that the bed does not heat too strongly at first by the above method; I have sometimes had the heat, stand at 80° of Fahrenheit for fourteen months within the bed, which is a long period and may seem improbable to any man till he tries the experiment. The expense will be found greatly diminished by those who will give the plan a fair and impartial trial.

I trust the Society will think the experiment worthy of being repeated in their Garden at Chiswick.

I remain, Sir,

Your obedient and very humble servant,

John Jackson.

Newby Park,
near Topcliffe, Yorkshire.

LIX. *Report on some of the more remarkable Hardy Ornamental Plants raised in the Horticultural Society's Garden from seeds received from Mr.* David Douglas, *in the years* 1831, 1832, 1833. *By* George Bentham, *Esq. F. L. S. Secretary.*

[Continued from page 414.]

Read June 17, 1834.

Ribes glutinosum.

R. inerme, foliis cordatis subquinquelobis serratis venosis utrinque glabriusculis subviscosis, racemis 30-40-floris laxis pubescentibus folio duplo triplove longioribus, pedicellis flore longioribus, calycibus tubuloso-campanulatis: laciniis oblongis obtusis patentibus petala (rubra) integerrima superantibus, bracteis oblongo-lanceolatis, baccis turbinatis hirsutis.

The few plants raised of this species have not yet flowered, but from the dried specimens transmitted by Mr. Douglas it promises to exceed the R. sanguineum in beauty; in foliage it only differs from that species, by being destitute of down and slightly viscous; but the bunches of flowers are twice the length, containing at least from thirty to forty flowers, which are borne on long slender pedicels the flowers are red, but the dried state of the specimen does not admit of any opinion being formed as to the intensity of the colour. It is quite hardy and grows vigorously in common garden soil.

Ribes malvaceum.

R. inerme, foliis cordatis 3-5-lobis serratis supra rugosissimis hispido-scabris subtus venosis villoso-tomentosis, racemis laxis pubescentibus folio vix longioribus, pedicellis brevissimis, calycibus tubuloso-campanulatis: laciniis ovatis obtusis patentibus, petalis brevissimis orbiculatis subretusis, bracteis ovatis, baccis ovoideis hirtis.

This is another species allied to R. sanguineum, but which has not yet flowered in the garden. The young plants however, as

1 Lophospermum scandens. 2 Lophospermum tenuiflorum. 3 Gilia tricolor

well as the dried specimens are decidedly different from those of R. sanguineum, by the leaves, which are very rough and hispid on the upper side, and clothed underneath with a whitish cottony down. The bunches of flowers are shorter and closer than in R. sanguineum, and each flower is nearly sessile on the common stalk. As far as we can at present judge from the plants in the Garden, it is as hardy as R. sanguineum, and quite as easily propagated.

Leptosiphon androsaceus. (Plate 18. fig. 1.)

L. androsaceus. *Benth. in Bot. Reg. ad. calc. n.* 1622.

This is a bushy annual, growing to the height of eight or ten inches, smooth in the lower part, with the upper leaves and extremities of the branches slightly downy. The leaves are opposite and sessile, but divided nearly to the base into a number of linear segments, so as to appear to be whorled. The flowers are collected into terminal heads surrounded at their base by a number of floral leaves, divided, like the stem-leaves, into linear segments. The long slender tube of the corolla projects beyond these leaves and bears at the top five spreading oval divisions varying in colour from white to pale blue and pink. The multitude of these flowers gives the plant a very gay appearance, and as it is perfectly hardy and promises to seed well, there is no doubt but that in a short time it will be found an important addition to our flower-beds.

Leptosiphon densiflorus. (Plate 18. fig. 2.)

L. densiflorus. *Benth. in Bot. Reg. l. c.*

In general appearance and mode of growth this plant is very similar to the preceding species. The leaves are, however, somewhat longer and finer, and the flowers, with a shorter and thicker tube, have the border more than twice as large and less spreading. The colour of the flower varies in the same degree.

Both these plants thrive in a poor sandy soil and an exposed

situation; they bear the sun remarkably well, and will live through a mild winter: but in that case they become unsightly; it is better to renew them every year from seeds.

Gilia tricolor. (Plate 18. fig. 3.)

G. tricolor. *Benth. in Bot. Reg. l. c.*

This is perhaps the handsomest of the new Polemonideæ received from California, both from the general appearance of the plant and the abundance and brilliancy of colour of the flowers. It grows to the height of about a foot, with an erect stem and foliage much resembling that of the G. capitata, but the flowers are very much longer, and instead of being collected in globose heads widely spread at the end of long peduncles, they are few in number in each head, but the peduncles being much shorter and very numerous, they form a large and rather dense panicle in which the deep orange of the centre of the colour and the light blue or white of the margin, separated by a circle of deep purple, show off to great advantage. It will probably be quite as easy of growth as the G. capitata.

Two other new species of the same tribe of Polemonideæ, from amongst those described under the above quoted number in the Botanical Register, have been raised in the garden. The one, Gilia achilleæfolia, figured in the Botanical Register, v. 20, t. 1682, only differs from G. capitata in some botanical characters and by a darker shade of the flowers. The other, G. pharnaceoides, (belonging to the section or rather genus Dactylophyllum) did not prove much worth cultivation. But amongst those sent in a dried state there are many that it would be highly desirable to obtain for our gardens. Should any collector again visit that rich country, I would particularly point out all the genus Hugelia, the Leptosiphon grandiflorus, Fenzlia dianthiflora, Gilia liniflora, and G. tenuiflora.

Phacelia tanacetifolia.

P. caule erecto, foliis bipinnatisectis: segmentis oblongis dentatis supremis confluentibus, staminibus exsertis.

This is a more elegant and less weedy plant than the P. circinnata now common in gardens. It grows to the height of a foot and a half or two feet. The stems are erect, not much branched, bearing a few rigid and reflexed hairs. The leaves are altogether from 3 to 5 inches long; the primary segments, especially the lower ones, are slightly petiolated, from 8 to 12 in number on each leaf and from half an inch to an inch distant. The secondary segments are from a quarter to half an inch long; those nearest the axis, sessile and distinct, the upper ones confluent; they are green on both sides, nearly glabrous, but covered with asperities. The flowers are of a light bluish violet colour, nearly sessile along one sided, spirally incurved racemes, forming together a dense dichotomous panicle placed at some distance from the upper leaves; the calyxes are covered with bristly hairs.

It is a hardy annual, thriving in any soil or situation.

Nemophila insignis.

N. foliis oppositis pinnatifidis basi in petiolum angustatis: lobis integerrimis 1-2 dentatisve, calycis sinubus reflexis, corollis calyce duplo longioribus, ovariis multi-ovulatis.

This elegant species of Nemophila is readily distinguished by the size of the flowers which are larger even than those of N. phacelioides (figured in the Botanical Magazine, t. 2373.) It is a low procumbent herb, but less straggling than N. parviflora and pedunculata. The leaves are from one to two inches long, green, with a few rigid hairs; the lobes from 3 to 5 on each side, deeply cut, but not reaching the midrib, of nearly equal size on the same leaf, ovate and slightly falcate. The peduncles axillary, solitary, one-flowered, nearly twice as long as the leaves. Flowers blue, above an inch in diameter. The ovarium contains usually 20 or 24 ovula

regularly arranged on each side of the central line of the broad fleshy placenta, and from 8 to 12 of these ovula usually attain maturity in each capsule.

It is a hardy annual, requiring a rich soil, not damp, and a situation fully exposed to the sun; it must be protected carefully from wet when forming its seeds or they will not ripen; indeed it produced its seeds in the garden very sparingly, with all the care that could be given to it.

Collinsia bicolor.

C. foliis ovato-lanceolatis basi subcordatis, laciniis calycinis ovatis.

This is a taller growing and rather more straggling plant than the C. grandiflora, with flowers twice the size. The whole plant is smooth, with a somewhat glaucous appearance. The lower leaves are petiolated, coarsely toothed on the margin and broadly heart-shaped at the base, the upper ones are sessile and entire. They are all obtuse, of a thick consistence, from 1 to 2 inches long. The floral leaves are very small and have in their axillæ from 2 to 4 flowers on each side of their stalk; the whole are placed at considerable distances from each other, forming long terminal racemes. The peduncles are shorter than the calyx and usually hairy as well as the calyx and the upper part of the flowering stem. The divisions of the calyx are very broad. The corollæ are precisely of the same form as in the C. grandiflora, but twice as large and varying in different shades of rose colour and purple mixed with white.

Mr. Douglas sent the seeds of this plant under the name of "A new Genus allied to Collinsia." But the form and structure of the flowers and seed-vessels as well as the general habit are so exactly that of Collinsia grandiflora, that the two plants cannot be separated upon the sole distinction of the breadth of the divisions of the calyx. The plants raised last autumn are now flowering abundantly, and it is hoped that there will be seed enough ripened

to distribute generally next winter, amongst the Fellows of the Society. It is an annual, and apparently a hardy one, growing freely in common garden soil, and preferring the open air, to the confinement of even a frame.

Chelone centranthifolia.

C. glaberrima, glauca, foliis ovato-lanceolatis integerrimis basi cordato-amplexicaulibus, panicula elongata, corollis tubulosis pendulis glabris, filamento quinto imberbi.

This plant resembles much the old Chelone barbata, from which it is chiefly distinguished by the broad base of the leaves and glabrous corolla. It grows to the height of three or four feet, half of which consists in a narrow lax panicle of pendulous scarlet flowers each about an inch long. It is very ornamental, and will probably require the same mode of treatment, and be as easy of cultivation as Chelone barbata itself.

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LX. *Journal of Meteorological Observations made in the Garden of the Horticultural Society at Chiswick during the year* 1833. *By Mr.* Robert Thompson.

No alteration has taken place in the manner of keeping this Journal.

JANUARY.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	30.552	34	34	—	Foggy	30.581	38	38	—	Fine	30.404	38	38	—	Rain
W.	2	—.127	44	44	—	Do. with Rain	—.052	47	47	—	Drizzly	—.201	43	43	—	Stormy & Wet
Th.	3	—.455	41	41	—	Hazy & Cold	—.499	43	43	—	Hazy	—.587	39	39	—	Fine
F.	4	—.608	34	34	—	Cloudy	—.594	36	33	3	Cloudy & Cold	—.536	35	35	—	Do. & Overcast
S.	5	—.441	32	32	—	Frosty	—.377	37	35	2	Clear & Ditto	—.407	31	31	—	Clear & Frosty
○ S.	6	—.480	31	31	—	Ditto	—.604	35	35	—	Dull	—.573	28	28	—	Ditto
• M.	7	—.602	25	25	—	Hard Frost	—.631	34	34	—	Slight Haze	—.682	34	34	—	Overcast
T.	8	—.732	33	33	—	Dense Fog	—.727	37	37	—	Hazy	—.727	34	34	—	Hazy
W.	9	—.660	34	34	—	Hazy	—.619	33	33	—	Overcast	—.512	32	32	—	Overcast
Th.	10	—.333	28	28	—	Sharp Frost	—.256	32	32	—	Frosty & Fine	—.116	25	25	—	Frosty
F.	11	29.980	31	31	—	Dense Fog	29.899	35	35	—	Fine	29.874	30	30	—	Do. & Foggy
☾ S.	12	—.901	31	31	—	Ditto & Frosty	—.900	38	38	—	Ditto	—.899	37	35	2	Slightly Overcast
S.	13	—.948	38	38	—	Drizzly & Foggy	—.985	42	42	—	Drizzly	30.136	41	41	—	Drizzly & Foggy
M.	14	30.149	41	41	—	Foggy	30.255	42	42	—	Foggy	—.255	40	40	—	Hazy
T.	15	—.218	38	38	—	Cloudy	—.189	40	40	—	Fine but Cold	—.221	48	48	—	Overcast
W.	16	—.245	38	37	1	Overcast	—.230	41	39	2	Ditto	—.253	36	36	—	Clear
Th.	17	—.196	37	35	2	Fine	—.146	42	42	—	Overcast	—.119	39	39	—	Overcast
F.	18	—.120	35	35	—	Drizzly	—.146	37	37	—	Do. & Drizzly	—.226	36	36	—	Drizzly
S.	19	—.302	35	35	—	Cloudy & Cold	—.304	37	32	5	Cloudy & Cold	—.300	37	37	—	Overcast
● S.	20	—.308	37	37	—	Ditto	—.353	36	32	4	Ditto	—.366	32	30	2	Fine but Cold
M.	21	—.374	30	28	2	Clear & Frosty	—.352	31	31	—	Clear & Frosty	—.377	30	30	—	Clear & Frosty
T.	22	—.440	27	25	2	Ditto	—.460	35	30	5	Ditto	—.554	30	30	—	Overcast
W.	23	—.783	23	23	—	Frosty and Foggy	—.608	32	32	—	Foggy	—.618	25	25	—	Hard Frost
Th.	24	—.550	30	30	—	Frosty	—.484	35	35	—	Fine	—.397	28	28	—	Clear
F.	25	—.303	30	30	—	Ditto & Foggy	—.233	34	34	—	Hazy	—.201	34	34	—	Overcast
S.	26	—.179	30	30	—	Ditto	—.163	39	39	—	Ditto	—.153	34	34	—	Drizzly
S.	27	—.211	32	32	—	Fine	—.141	42	42	—	Fine	—.066	38	38	—	Fine
M.	28	—.020	36	36	—	Ditto	29.981	44	44	—	Ditto	29.803	40	40	—	Rain
☽ T.	29	29.331	38	38	—	Rain	—.345	41	41	—	Drizzly	—.367	39	39	—	Overcast
W.	30	—.573	38	38	—	Fine	—.670	38	38	—	Cold and Wet	—.794	31	31	—	Clear & Frosty
Th	31	—.788	30	30	—	Frosty	—.719	36	36	—	Hazy	—.443	35	35	—	Rain
		30.255	33.58	33.35	.22		30.242	37.71	37.03	.67		30.231	35.12	35.0	.12	

JANUARY.

Days.	Temperature. Max.	Min.	Sun.	Rad.	Wind. Direction.	Force.	Rain. In.	Pts.
1	45	35	46	33	SW	Little		.06
2	+47	40	48	38	S	Ditto		.08
3	42	33	43	32	NE	Ditto		
4	42	29	44	22	——	Ditto		
5	38	26	45	16	——	Ditto		
6	36	24	40	15	W	Ditto		
7	36	32	38	29	SW	Ditto		
8	37	30	38	27	NE	Ditto		
9	32	26	40	17	S	Ditto		
10	34	25	35	18	E	Ditto		
11	39	30	43	24	——	Ditto		
12	40	36	43	32	NE	Ditto		.05
13	41	38	42	37	E	Ditto		.04
14	42	34	44	30	——	Ditto		
15	40	36	41	35	——	Brisk		
16	40	36	43	32	NE	Ditto		
17	42	34	47	27	——	Little		
18	37	35	38	33	——	Ditto		.02
19	37	35	39	33	——	Ditto		
20	38	28	40	22	——	Ditto		
21	38	29	42	21	E	Brisk		
22	38	24	43	13	SE	Little		
23	35	—22	38	—12	——	Ditto		
24	37	25	41	17	E	Ditto		
25	36	29	38	23	——	Ditto		
26	39	28	40	20	SE	Ditto		
27	42	35	54	30	SW	Ditto		
28	46	37	+59	32	——	Ditto		.12
29	46	35	41	28	NE	Ditto		.01
30	39	28	44	20	N	Ditto		
31	37	34	38	32	S	Ditto		.14
	39.29	31.29	42.42	25.80				.52

Remarks.

Half the quantity of rain in this month fell on the 28th and 31st, and altogether it did not much exceed one-third of the usual mean. The barometer stood generally very high. The wind was chiefly from a north or easterly direction. The temperature was below the average; but there was no continued severe frost, nor was the maximum of the thermometer in the shade depressed below the freezing-point. The general character of the month was frosty at night, hazy and cold, sometimes densely foggy, with the atmosphere almost continually saturated with moisture.

Mean Pressure from the 3 daily observations 30.242 inches.
—— Temperature ..... Ditto ..... 35°.47
—— Dew Point ..... Ditto ..... 35°.13
—— Degree of Dryness ... Ditto ..... .34
—— Degree of Moisture .. Ditto ..... .992
—— Force of Vapour .... Ditto ..... 0.241 inch.
Least observed degree of Moisture ..... .843
Maximum Temperature in the Shade ..... 47°
Minimum Temperature in ditto ..... 22°
Maximum Temperature in the Sun ..... 59°
Minimum of Terrestrial Radiation ..... 12°
Mean Temperature of external Air ..... 35°.29

WINDS.

North	1 days.	N. East	11 days.
South	3 ..	S East	3 ..
East	8 ..	N. West	0 ..
West	1 ..	S. West	4 ..

31 days.

Amount of Rain..... 0.52 inch.

FEBRUARY.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.476	36	36	—	Cloudy [Rain	29.608	38	35	3	Clear & Cold	29.676	33	33	—	Clear and Fine
S.	2	—.021	44	44	—	Boisterous, heavy	28.869	53	53	—	Rain	28.928	44	44	—	Windy, Showers
S.	3	—.100	47	45	2	Clear & Windy	29.344	48	42	6	Windy	29.574	41	40	1	Very Fine
○ M.	4	—.714	43	43	—	Drizzly & Foggy	—.751	55	55	—	Cloudy & Fine	—.975	51	51	—	Do. & Cloudy
T.	5	—.918	43	43	—	Cloudy	—.909	55	55	—	Ditto	—.986	47	47	—	Very Fine
W.	6	30.048	47	47	—	Ditto	—.994	52	50	2	Fine	—.864	47	47	—	Ditto
Th.	7	29.813	48	48	—	Do. and Rain	—.954	53	51	2	Ditto	—.890	45	45	—	Cloudy
F.	8	—.760	50	50	—	Rain	—.740	55	55	—	Cloudy	—.754	36	36	—	Fine
S.	9	—.672	40	40	—	Ditto	—.736	46	46	—	Ditto and Fine	—.820	34	34	—	Do. and Frosty
S.	10	—.430	56	56	—	Heavy Rain	—.291	52	52	—	Rain	—.261	45	45	—	Stormy & Wet
☾ M.	11	—.415	47	47	—	Clear & Windy	—.437	52	49	3	Fine	—.423	41	41	—	Clear
T.	12	—.539	47	47	—	Wet & Stormy	—.656	52	49	3	Ditto	—.516	46	46	—	Overcast
W.	13	—.360	48	48	—	Ditto	—.487	50	50	—	Rain	—.305	44	44	—	Cloudy & Windy
Th.	14	—.288	45	45	—	Ditto	—.461	49	45	4	Fine	—.165	41	41	—	Heavy Rain
F.	15	—.176	40	40	—	Boisterous Rain	—.361	44	36	8	Ditto	—.494	35	35	—	Clear
S.	16	—.683	32	32	—	Clear & Frosty	—.721	43	39	4	Do. but Cold	—.832	39	39	—	Cloudy & Fine
S.	17	—.783	34	34	—	Slight Haze	—.682	42	42	—	Rain	—.579	43	43	—	Rain
M.	18	—.561	41	41	—	Fine	—.593	50	50	—	Cloudy	—.700	40	39	1	Clear and Fine
● T.	19	—.874	38	35	3	Clear [Rain	—.913	46	39	7	Very Fine	—.733	42	42	—	Rain
W.	20	—.138	43	43	—	Boisterous with	—.061	43	43	—	Stormy & Wet	—.466	40	40	—	Stormy & Wet
Th.	21	—.788	42	42	—	Cold & Cloudy	—.919	46	46	—	Fine	30.060	41	41	—	Overcast
F.	22	30.070	40	40	—	Do. and Overcast	30.025	45	45	—	Cloudy & Cold	—.002	38	38	—	Drizzly
S.	23	29.918	35	35	—	Fine, but Cold	29.850	42	41	1	Ditto	29.738	36	36	—	Fine
S.	24	—.559	37	37	—	Ditto	—.486	41	41	—	Rain	—.527	43	43	—	Overcast
M.	25	—.589	47	47	—	Rain	—.603	49	43	6	Very Fine	—.513	38	38	—	Showery
T.	26	—.369	47	47	—	Ditto	—.245	50	50	—	Stormy & Wet	—.233	41	41	—	Fine
☽ W.	27	—.121	42	42	—	Heavy Rain	—.096	49	49	—	Showery	—.237	40	40	—	Ditto
Th.	28	—.314	35	35	—	Overcast	—.104	42	42	—	Stormy & Wet	28.898	41	41	—	Do. and Clear
		29.553	42.63	42.46	.17		29.567	47.93	46.18	1.75		29.576	40.14	40.07	.07	

FEBRUARY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	48	31	50	27	N	Brisk	.18	This month was remarkably wet. The days on which rain did not fall were only six. Altogether it amounted to nearly 4 inches. The barometer averaged half an inch below the usual height of the mercurial column in this month. South and south-west winds were prevalent; and the temperature was higher by 5° than the average for this period of the season. The weather was very boisterous, with heavy rain on the 2nd and 20th in particular; and from the 10th to the 14th it was stormy and wet, and also on the 26th and 28th. Although the temperature was high, vegetation did not make an excessive advance owing to its being protected from the influence of the sun by a generally clouded sky.
2	54	41	55	36	SW	Strong	.20	
3	53	40	56	35	——	Ditto	.06	
4	+56	49	60	43	——	Little		
5	56	41	61	35	W	Brisk	.02	
6	55	45	63	43	S	Ditto	.06	
7	55	42	64	38	SW	Little	.03	
8	55	40	59	38	——	Brisk	.67	
9	51	31	56	25	W	Little	.16	
10	54	45	58	41	SW	Brisk	.28	
11	54	39	59	33	——	Strong	.16	
12	53	44	59	41	——	Brisk	.26	
13	51	41	52	40	——	Ditto	.08	
14	49	36	56	34	W	Strong	.50	
15	45	31	53	21	——	Brisk		
16	45	—29	54	—20	——	Ditto		
17	46	39	51	35	S	Ditto	.14	
18	49	37	59	30	W	Ditto		
19	48	39	+65	38	N	Little	.16	
20	45	38	45	37	W	Boisterous	.32	
21	47	39	49	36	NE	Strong		
22	45	35	49	29	——	Brisk	.02	
23	44	31	56	29	N	Little		
24	46	35	50	29	E	Ditto	.12	
25	50	35	56	31	S	Ditto	.10	
26	46	35	49	33	——	Strong	.18	
27	48	30	50	26	E	Little	.08	
28	45	37	46	31	S	Strong	.20	
	49·75	37·69	55·0	33·35			3·98	

Mean Pressure from the 3 daily observations 29.565 inches.
—— Temperature ..... Ditto ..... 43°.56
—— Dew Point ..... Ditto ..... 42°.90
—— Degree of Dryness .... Ditto ..... .66
—— Degree of Moisture .. Ditto ..... .975
—— Force of Vapour .... Ditto ..... 0.314 inch.
Least observed degree of Moisture ..... .756
Maximum Temperature in Shade ..... 56°
Minimum Temperature in ditto ..... 29°
Maximum Temperature in Sun ..... 65°
Minimum of Terrestrial Radiation ..... 20°
Mean Temperature of External Air ..... 43°.72

WINDS.

North.....3 days.	N. East.....2 days
South.....5 ..	S. East.....0 ..
East.....2 ..	N. West.....0 ..
West.....7 ..	S. West.....9 ..

28 days.

Amount of Rain ..... 3.98 inch.

MARCH.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.029	40	40	—	Overcast	29.157	46	42	4	Overcast	29.480	41	41	—	Clear and Windy
S.	2	—.755	37	35	2	Slight Frost	—.544	51	48	3	Ditto	—.874	45	45	—	Overcast & Fine
S.	3	—.567	48	48	—	Overcast	—.444	52	50	2	Ditto	—.714	46	46	—	Clear
M.	4	—.717	46	46	—	Ditto & Fine	—.766	54	50	4	Do. and Fine	—.903	43	43	—	Do. and Fine
T.	5	30.027	35	35	—	Foggy	30.058	52	50	2	Fine	30.132	39	39	—	Ditto
○ W.	6	30.144	41	41	—	Overcast	—.163	45	41	4	Cold & Cloudy	—.245	38	38	—	Fine but Cold
Th.	7	—.309	38	38	—	Fine but Cold	—.332	45	35	10	Ditto	—.351	31	31	—	Very Clear
F.	8	—.332	34	29	5	Cloudy & Cold	—.325	38	22	16	Cold and Dry	—.310	29	29	—	Ditto
S.	9	—.203	34	34	—	Snowing	—.139	40	35	5	Fine but Cold	—.107	34	34	—	Cloudy & Windy
S.	10	—.016	37	34	3	Overcast & Windy	29.986	40	29	11	Cloudy & Do.	—.049	35	32	3	Ditto
M.	11	—.086	33	33	—	Snowing	30.094	40	35	5	Do. Slight Snow	—.149	34	29	5	Overcast
T.	12	—.104	34	30	4	Cloudy	—.068	38	28	10	Cloudy & Cold	—.001	30	28	2	Clear and Fine
☾ W.	13	29.821	30	30	—	Frosty	29.712	39	34	5	Hazy	29.508	26	26	—	Clear
Th.	14	—.411	30	27	3	Ditto	—.354	42	25	17	Cloudy	—.395	31	31	—	Cloudy
F.	15	—.430	34	30	4	Frosty Haze	—.467	44	33	11	Cold and Dry	—.488	30	30	—	Clear
S.	16	—.534	41	40	1	Fine but Cold	—.518	48	40	8	Fine	—.529	41	41	—	Cloudy
S.	17	—.619	40	39	1	Overcast	—.561	39	39	—	Rain	—.635	35	35	—	Drizzly
M.	18	—.751	40	40	—	Heavy Rain	—.781	42	42	—	Overcast	—.844	37	37	—	Overcast
T.	19	30.007	38	35	3	Cloudy & Cold	30.022	44	39	5	Cold & Cloudy	30.151	30	30	—	Clear & Frosty
W.	20	—.185	35	33	2	Frosty	—.101	43	32	11	Fine	—.042	37	37	—	Do. and Fine
● Th.	21	29.942	37	35	2	Ditto	29.895	43	30	13	Ditto	29.844	31	31	—	Snow Showers
F.	22	—.950	35	35	—	Overcast	—.956	43	27	16	Ditto	—.951	32	32	—	Heavy fall of Snow
S.	23	—.917	32	32	—	Snow Showers	—.957	33	33	—	Snow Showers	—.950	28	28	—	Clear & Frosty
S.	24	—.989	33	32	1	Frosty	—.975	43	31	12	Cloudy & Cold	—.837	33	33	—	Rain
M.	25	—.874	37	37	—	Fine	—.852	44	33	11	Cloudy	—.793	35	35	—	Snow Showers
T.	26	—.873	35	35	—	Clearing	—.935	45	45	—	Very Fine	30.039	36	36	—	Clear
W.	27	30.105	34	34	—	Frosty Fog	30.104	44	44	—	Overcast	29.998	31	31	—	Do. and Frosty
D Th	28	—.041	40	40	—	Fine	—.018	53	44	9	Very Fine	—.925	37	37	—	Do. and Fine
F.	29	29.961	37	37	—	Foggy	29.971	52	42	10	Ditto	—.782	44	44	—	Cloudy & Do.
S.	30	—.736	41	40	1	Fine	—.762	51	38	13	Ditto	—.653	36	36	—	Clear
S.	31	—.822	38	38	—	Hoar Frost	—.723	56	39	17	Ditto	—.473	43	40	3	Overcast
		29.881	36.83	35.80	1.03		29.862	44.79	37.25	7.54		29.875	35.42	35.0	.42	

MARCH.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	50	33	56	26	W	Strong		The weather in this month, though rather cold, was seasonable and favourable for the operations of the garden. No rain fell till the 17th. There was a slight snow on the 11th. On the 22d, however, there was at night, a calm but heavy fall of snow in very broad flakes, which accumulated much on the branches of trees and shrubs; and these only became eased of their load towards noon of next day. With few exceptions, the nights were more or less frosty throughout, and the general character of the days was bleak and cold, with a prevalence of north or easterly winds. Of course vegetation advanced slowly.
2	51	46	60	41	——	Little		
3	54	44	60	39	SW	Brisk		
4	57	32	64	25	SE	Ditto		
5	53	38	62	33	N	Little		
6	44	35	58	28	——	Brisk		
7	45	28	57	17	——	Little		
8	39	29	50	22	——	Brisk		
9	40	32	53	29	——	Ditto		
10	40	32	46	24	NE	Ditto		
11	41	29	56	24	——	Ditto	.01	
12	41	24	59	14	——	Little		
13	42	—23	61	—13	SE	Ditto		
14	44	28	61	20	E	Ditto		
15	45	35	57	29	——	Brisk		
16	48	39	56	37	——	Ditto		
17	40	37	45	35	NE	Little	.36	
18	42	35	49	30	——	Ditto	.03	
19	45	25	49	14	——	Brisk		
20	45	31	52	24	N W	Ditto		
21	45	32	55	25	N	Ditto		
22	45	25	55	24	NW	Little	.18	
23	39	27	42	16	NE	Ditto		
24	43	34	45	32	——	Brisk	.04	
25	44	32	55	28	——	Little	.34	
26	44	31	56	24	SE	Ditto		
27	53	29	56	21	NE	Ditto		
28	54	29	65	21	S	Ditto		
29	55	34	65	28	——	Ditto		
30	52	27	69	17	W	Ditto		
31	+58	42	+70	40	SE	Ditto	.26	
	46.38	32.16	56.25	25.80			1.22	

Mean Pressure from the 3 daily observations 29.872 inches.
—— Temperature ..... Ditto ..... 39°.01
—— Dew Point ..... Ditto ..... 36°.01
—— Degree of Dryness ... Ditto ..... 2°.99
—— Degree of Moisture .. Ditto ..... .911
—— Force of Vapour ..... Ditto ..... 0.248 inch.
Least observed degree of Moisture ..... .559
Maximum Temperature in the Shade .... 58°
Minimum Temperature in ditto ..... 23°
Maximum Temperature in the Sun ..... 70°
Minimum of Terrestrial Radiation ..... 13°
Mean Temperature of External Air ..... 39°.27

WINDS.

North	6 days.	N. East	10 days.
South	2 ..	S. East	4 ..
East	3 ..	N. West	2 ..
West	3 ..	S. West	1 ..

31 days.

Amount of Rain ..... 1.22 inch.

APRIL.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
M.	1	29.145	45	45	—	Hazy, Rain	29.025	53	53	—	Rain	28.910	48	48	—	Rain
T.	2	—.045	52	52	—	Ditto	—.100	54	54	—	Ditto	29.123	47	47	—	Drizzly
W.	3	—.489	53	53	—	Cloudy	—.589	57	50	7	Very Fine	—.665	44	44	—	Clear
○ Th.	4	—.543	49	49	—	Rain	—.501	58	58	—	Showers	—.548	49	49	—	Showery
F.	5	—.814	47	42	5	Fine	—.905	56	50	6	Fine	—.900	49	49	—	Fine
S.	6	30.024	49	45	4	Very Fine	—.980	57	42	15	Fine	—.894	38	38	—	Clear and Fine
S.	7	29.881	40	40	—	Foggy	—.845	55	45	10	Ditto	—.872	41	41	—	Ditto
M.	8	—.981	44	44	—	Fine	30.003	55	48	7	Do. but Cold	30.079	40	40	—	Ditto
T.	9	30.121	48	48	—	Foggy	—.063	53	53	—	Rain	29.978	44	44	—	Ditto
W.	10	29.883	51	50	1	Overcast	29.753	55	55	—	Ditto [and Hail	—.476	43	43	—	Stormy & Wet
Th.	11	—.438	46	45	1	Cold & Windy	- .363	43	43	—	Stormy Showers	—.304	38	38	—	Fine, Thunder
☾ F.	12	—.357	44	42	2	Fine but Cold	—.413	50	50	—	Cloudy, Showers	—.632	35	35	—	Ditto Ditto
S.	13	—.771	43	43	—	Fine	—.735	53	44	9	Fine	—.402	42	42	—	Heavy Rain
S.	14	—.259	43	43	—	Stormy Showers	—.468	46	46	—	Showers wth Hail	—.634	36	36	—	Clear & Frosty
M.	15	—.570	44	44	—	Fine	—.408	50	50	—	Showery	—.243	37	37	—	Drizzly
T.	16	—.462	44	44	—	Cloudy	—.480	49	39	10	Cold & Cloudy	—.574	35	35	—	Clear
W.	17	—.613	43	43	—	Fine	—.608	40	40	—	Rain	—.541	39	39	—	Cloudy
Th.	18	—.705	42	42	—	Cloudy	—.740	47	47	—	Showers	—.832	38	38	—	Clear
F.	19	30.000	43	43	—	Fine	30.019	51	41	10	Cloudy	30.059	39	39	—	Ditto and Fine
● S.	20	—.114	48	48	—	Heavy Rain	—.111	51	55	6	Ditto	—.166	38	38	—	Do. and Frosty
S.	21	—.210	45	45	—	Fine	—.199	56	43	13	Very Fine	—.213	37	37	—	Ditto
M.	22	—.241	48	48	—	Ditto	—.225	61	45	16	Ditto	—.171	42	40	2	Clear
T.	23	—.214	50	50	—	Foggy	—.195	65	49	16	Ditto	—.104	51	51	—	Overcast
W.	24	—.049	53	53	—	Hazy	—.008	50	50	—	Rain wth Thunder	—.117	48	48	—	Ditto
Th.	25	—.246	49	49	—	Ditto	—.213	49	49	—	Drizzly Rain	—.270	37	37	—	Clear & Frosty
F.	26	—.285	45	45	—	Foggy	—.235	53	49	4	Very Fine	—.118	51	51	—	Overcast
☽ S.	27	—.087	52	52	—	Overcast	—.024	64	56	8	Ditto	29.897	51	51	—	Ditto
S.	28	29.769	54	54	—	Fine	29.732	57	49	8	Cloudy	—.674	42	42	—	Clear & very Fine
M.	29	—.639	45	45	—	Ditto	—.592	51	51	—	Do. with Showers	—.581	37	37	—	Clear
T.	30	—.666	46	46	—	Foggy	—.651	55	40	15	Very Fine	—.186	41	41	—	Cloudy
		29.787	46.83	46.40	.43		29.772	53.46	48.13	5.33		29.738	41.9	41.83	.06	

APRIL.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	57	43	58	40	S	Little	.08	Most of the rain in this month, amounting to nearly an inch above the average quantity, fell in heavy showers, frequently accompanied with stormy winds. The 11th and 14th were stormy, with heavy showers of hail. Thunder was heard about these times, and also on the 24th. On the 29th, about 4 P. M., thunder preceded a heavy storm of hail from S. W. which lasted for nearly an hour. The temperature was several degrees below the average, and on the whole there was not much settled fine weather, the longest continuation of such being only three days, viz. from the 20th to the 23rd inclusive.
2	57	45	60	41	——	Ditto	.23	
3	61	43	73	35	W	Ditto		
4	60	42	62	37	S	Ditto	.10	
5	58	42	64	37	W	Ditto	.02	
6	57	32	65	25	S	Ditto		
7	57	35	73	29	E	Ditto		
8	58	32	72	24	NE	Ditto		
9	59	42	69	34	SW	Ditto	.05	
10	56	40	70	34	S	Brisk	.26	
11	53	36	72	30	SW	Strong	.18	
12	51	37	62	32	NW	Brisk	.08	
13	56	40	70	36	W	Little	.06	
14	50	31	58	24	NW	Strong	.02	
15	53	33	58	31	SW	Little	.47	
16	50	30	60	24	N	Ditto		
17	50	33	61	28	——	Brisk	.21	
18	51	—29	59	—20	——	Ditto		
19	58	39	62	32	SW	Ditto	.06	
20	58	31	64	24	W	Ditto	.02	
21	57	32	60	25	SE	Ditto		
22	+67	37	+81	28	SW	Ditto		
23	61	44	81	39	NW	Ditto	.02	
24	57	45	66	44	SE	Ditto	.16	
25	55	34	65	27	N	Ditto	.02	
26	63	47	67	42	W	Ditto		
27	62	48	69	47	S	Ditto	.12	
28	59	32	75	26	SW	Brisk		
29	59	30	75	29	NW	Little	.24	
30	62	37	78	29	——	Ditto	.31	
	57.06	37.36	66.96	31.76			2.71	

Mean Pressure from the 3 daily observations 29.765 inches.
—— Temperature ..... Ditto ..... 47°.39
—— Dew Point ..... Ditto ..... 45°.45
—— Degree of Dryness ... Ditto ..... 1°.94
—— Degree of Moisture .. Ditto ..... .934
—— Force of Vapour. .... Ditto .... . 0.344 inch.
Least observed degree of Moisture ..... .589
Maximum Temperature in Shade ..... 67°
Minimum Temperature in ditto ..... 29°
Maximum Temperature in the Sun ..... 81°
Minimum of Terrestrial Radiation ..... 20°
Mean Temperature of External Air..... 47°.21

WINDS.

North.....4	days.	N. East.....1	days.
South.....6	..	S. East.....2	..
East.....1	..	N West.....5	..
West.....5	..	S. West.....6	..

30 days.

Amount of Rain..... 2.71 inch.

MAY.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
W.	1	29.711	52	52	—	Heavy Dew	29.644	52	49	3	Cloudy	29.553	50	50	—	Rain
Th.	2	—.541	52	52	—	Heavy Rain	—.548	56	56	—	Rain	—.700	53	53	—	Drizzly
F.	3	—.755	57	57	—	Drizzly	—.839	66	65	1	Fine	—.834	55	55	—	Clear & Fine
○ S.	4	—.932	62	62	—	Fine	—.941	75	63	12	Very Warm	30.085	58	58	—	Ditto
S.	5	30.280	62	53	9	Ditto	30.290	70	51	19	Ditto	—.433	51	51	—	Ditto
M.	6	—.500	57	53	4	Very Fine	—.493	69	52	17	Ditto	—.461	49	47	2	Ditto
T.	7	—.436	55	55	—	Hazy	—.361	67	51	16	Dry and Fine	—.194	50	50	—	Overcast
W.	8	—.107	53	53	—	Very Fine	—.032	67	60	7	Ditto	29.935	54	54	—	Very Fine
Th.	9	29.836	66	64	2	Ditto	29.900	75	59	16	Ditto	—.914	56	56	—	Ditto
F.	10	—.948	57	53	4	Cloudy	—.987	65	53	12	Ditto	30.017	57	56	1	Ditto
☾ S.	11	30.080	58	58	—	Fine	30.105	68	53	15	Ditto	—.115	59	59	—	Ditto [Lightning
S.	12	—.080	62	60	2	Ditto	29.946	79	59	20	Ditto	29.926	62	58	4	Cloudy, with
M.	13	—.032	55	54	1	Ditto	30.064	72	55	17	Ditto	30.137	55	55	—	Very Fine
T.	14	—.229	58	58	—	Ditto	—.178	73	55	18	Ditto	—.055	60	60	—	Ditto
W.	15	—.005	71	60	11	Very Hot	29.950	84	58	26	Very Hot	29.863	61	61	—	Ditto
Th.	16	29.899	69	59	10	Ditto	—.906	79	63	16	Ditto	—.968	59	59	—	Ditto
F.	17	—.836	72	65	7	Ditto	—.862	81	63	18	Ditto	30.075	60	60	—	Overcast
S.	18	30.288	66	54	12	Cloudy	30.230	75	58	17	Ditto	—.242	54	54	—	Fine
● S.	19	—.249	60	56	4	Fine	—.199	66	66	—	Rain	—.195	55	55	—	Drizzly
M.	20	—.127	61	61	—	Cloudy	—.150	70	60	10	Very Fine	—.272	54	54	—	Very Fine
T.	21	—.401	58	56	2	Fine	—.385	73	56	17	Ditto	—.341	61	61	—	Ditto
W.	22	—.398	60	60	—	Very Fine	—.369	75	62	13	Ditto	—.353	55	55	—	Ditto
Th.	23	—.389	65	60	5	Ditto	—.378	74	62	12	Ditto	—.329	61	60	1	Ditto
F.	24	—.331	62	55	7	Ditto	—.272	74	65	9	Ditto	—.214	59	59	—	Ditto
S.	25	—.213	64	58	6	Ditto	—.051	79	62	17	Ditto	—.083	57	57	—	Ditto
D S.	26	—.178	53	49	4	Cloudy	—.337	61	39	22	Ditto	—.304	41	41	—	Do. but Cold
M.	27	—.324	57	50	7	Very Fine	—.294	72	46	26	Ditto	—.208	48	48	—	Fine
T.	28	—.268	57	50	7	Ditto	—.224	70	50	20	Ditto	—.136	56	49	7	Overcast
W.	29	—.170	57	52	5	Ditto	—.174	67	52	15	Cloudy	—.168	50	50	—	Clear and Fine
Th.	30	—.265	58	57	1	Ditto	—.275	61	50	11	Fine	—.203	44	44	—	Ditto
F.	31	—.253	58	53	5	Ditto	—.213	72	52	20	Ditto	—.136	52	50	2	Ditto
		30.131	59.80	56.09	3.71		30.116	70.54	56.29	14.25		30.111	54.70	54.16	.54	

MAY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	57	49	79	49	S	Strong	.08	A more remarkably hot and dry month of May has perhaps never been experienced; Rain only fell on 3 days during the month, viz. on the 1st and 3rd slightly, and to the depth of half an inch on the 19th. The Thermometer on the 15th and 17th stood as high as 86° in the Shade, and at other times it was frequently above 80°. The Mean Temperature was nearly 5° above the average. The plentiful supply of moisture in the ground, from the abundant rains of the former months, supported established vegetation tolerably well till towards the middle of the month. The rain on the 19th afforded a temporary supply; but by the end of the month many things began to suffer, and particularly newly planted trees, the roots of which were not prepared for such a great demand as the powerful evaporation occasioned. The dry weather also rendered the raising of seeds in the open air very precarious.
2	63	53	80	50	——	Brisk		
3	72	46	96	41	——	Ditto	.10	
4	81	51	112	45	W	Little		
5	73	42	110	38	NE	Ditto		
6	69	41	102	37	——	Ditto		
7	70	50	110	49	——	Ditto		
8	72	47	111	41	E	Ditto		
9	71	48	108	42	S	Ditto		
10	67	45	100	38	——	Ditto		
11	75	48	104	42	——	Ditto		
12	81	50	124	43	——	Ditto		
13	76	45	102	38	SW	Ditto		
14	77	51	104	45	——	Ditto		
15	+86	51	122	44	S	Brisk		
16	83	52	125	45	W	Ditto		
17	86	55	+126	50	——	Ditto		
18	70	50	120	46	E	Ditto		
19	70	50	118	46	——	Little	.50	
20	72	45	119	39	SW	Ditto		
21	79	48	120	42	——	Ditto		
22	80	45	120	37	SE	Ditto		
23	76	47	114	40	E	Ditto		
24	80	48	118	42	——	Ditto		
25	82	50	99	45	SW	Ditto		
26	73	—39	89	—34	NE	Brisk		
27	73	41	96	36	N	Ditto		
28	75	44	102	39	W	Ditto		
29	67	41	80	35	NE	Little		
30	69	40	88	34	E	Ditto		
31	75	44	92	38	——	Ditto		
	74·19	46.97	106	41.61			.68	

Mean Pressure from the 3 daily observations 30.119 inches
—— Temperature .....Ditto..... 61°.68
—— Dew Point .....Ditto..... 55°.51
—— Degree of Dryness ....Ditto..... 6°.16
—— Degree of Moisture ...Ditto..... .823
—— Force of Vapour .....Ditto..... 0.484 inch.
Least observed degree of Moisture ..... .428
Maximum Temperature in Shade ..... 86°
Minimum Temperature in ditto..... 39°
Maximum Temperature in the Sun .... 126°
Minimum of Terrestrial Radiation ..... 34°
Mean Temperature of External Air ..... 68°.58

WINDS.

North.....	1 days.	N. East	5 days.
South.....	8 ..	S. East	1 ..
East	7 ..	N. West	0 ..
West.....	4 ..	S. West	5 ..

31 days.

Amount of Rain ..... .68 inch.

JUNE.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
											[Hot					
S.	1	30.087	65	57	8	Hot and Dry	30.029	80	50	30	Very Dry and	29.922	62	62	—	Cloudy
○ S.	2	29.740	66	57	9	Overcast	29.672	73	61	12	Overcast	—.591	57	57	—	Rain
M.	3	—.498	59	55	4	Fine	—.518	67	54	13	Fine	—.589	51	51	—	Very Fine
T.	4	—.597	64	52	12	Cloudy	—.587	72	48	24	Very Fine	—.633	50	50	—	Ditto
W.	5	—.714	58	55	3	Fine	—.742	72	52	20	Ditto	—.780	54	54	—	Ditto
Th.	6	—.818	60	55	5	Very Fine	—.817	76	53	23	Ditto and Dry	—.900	60	60	—	Overcast
F.	7	30.009	65	57	8	Do. and Dry	30.035	72	52	20	Cloudy & Fine	30.100	59	58	1	Very Fine
S.	8	—.146	61	60	1	Cloudy	—.210	71	53	18	Ditto	—.264	58	58	—	Fine
S.	9	—.310	63	60	3	Fine	—.305	76	61	15	Ditto	—.309	68	60	8	Very Fine
☾ M.	10	—.403	65	60	5	Slight Haze	—.215	79	54	25	Dry and Hot	—.013	63	63	—	Clear & Ditto
T.	11	29.699	69	63	6	Fine, Brisk W.	29.678	67	52	15	Boisterous	29.833	55	53	2	Cloudy & Windy
W.	12	—.759	58	50	8	Dry & Windy	—.778	62	51	11	Ditto & Cloudy	—.809	55	55	—	Cloudy
Th.	13	—.687	56	56	—	Rain	—.427	56	56	—	Rain	—.425	55	55	—	Ditto
F.	14	—.414	60	60	—	Fine	—.472	59	59	—	Ditto	—.797	47	47	—	Clear & Cool
S.	15	—.869	55	55	—	Ditto	—.897	70	48	22	Fine	—.967	57	57	—	Rain
S.	16	—.681	58	58	—	Heavy Rain	—.713	68	68	—	Clearing	—.802	55	55	—	Clear
● M.	17	—.857	60	58	2	Fine	—.858	70	54	16	Fine	—.934	55	55	—	HeavyShowers
T.	18	30.071	62	62	—	Ditto	30.115	69	52	17	Ditto	30.116	59	59	—	Overcast
W.	19	—.073	61	57	4	Overcast	—.012	67	67	—	Rain	29.971	61	61	—	Ditto
Th.	20	29.934	68	68	—	Rain	29.914	68	53	15	Fine	—.941	55	55	—	Clear
F.	21	30.025	62	57	5	Fine	30.014	70	56	14	Cloudy	—.988	63	63	—	Cloudy
S.	22	29.977	60	50	10	Ditto	29.969	66	49	17	Ditto[showers	—.866	60	60	—	Rain
S.	23	—.590	60	60	—	Cloudy	—.513	60	60	—	Windy, with	—.551	51	51	—	Fine
☽ M.	24	—.640	56	52	4	Fine	—.682	62	62	—	Heavy Shower,	—.790	50	50	—	Clear
T.	25	—.903	57	57	—	Ditto	—.890	66	64	2	Fine [some Hail	—.896	56	56	—	Ditto
W.	26	—.800	56	56	—	Rain	—.733	69	60	9	Overcast	—.636	57	57	—	Clearing
Th.	27	—.662	58	58	—	Cloudy	—.845	60	60	—	Showery	—.917	56	56	—	Very Fine
F.	28	—.849	66	58	8	Fine	—.762	78	54	24	Fine	—.737	62	62	—	Ditto
S.	29	—.778	65	60	5	Ditto	—.801	71	55	16	Ditto	—.854	60	58	2	Ditto
S.	30	—.862	63	60	3	Ditto	—.845	73	59	14	Ditto	—.838	53	53	—	Ditto
		29.848	61.2	57.43	3.76		29.834	68.96	55.9	13.06		29.858	56.80	56.36	.43	

JUNE.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	84	51	120	45	S	Little			With the exception of the 2nd, the weather continued dry till the 12th, from which time the supply of rain was plentiful. The Temperature continued high; and on the 10th the Thermometer stood at 87° in the Shade, and at 125° in the Sun's rays. This was followed by strong wind from S.W.; and on the 12th at night rain commenced. On the night of the 22nd upwards of half an inch fell. On the 24th there were heavy showers with some hail. A very heavy rain, preceded by thunder and lightning, occurred on the 26th between 4 and 5 P. M., during which time nearly half an inch of rain fell. Vegetation suffered most from the dry and violent wind on the 11th.
2	71	49	90	45	NW	Ditto		.20	
3	70	39	90	33	S	Brisk			
4	73	41	95	35	SE	Little			
5	75	45	94	40	W	Ditto			
6	75	50	96	46	S	Brisk			
7	75	52	100	45	W	Little			
8	72	47	90	41	——	Brisk			
9	81	50	100	45	——	Little			
10	+87	53	+125	48	——	Ditto			
11	71	50	97	45	SW	Strong			
12	64	47	90	43	——	Ditto		.10	
13	67	43	100	40	——	Little		.10	
14	68	—38	107	—33	W	Ditto		.14	
15	68	52	108	50	SE	Ditto		.26	
16	73	50	100	45	W	Brisk		.07	
17	78	50	98	45	——	Strong		.20	
18	74	53	108	48	——	Little			
19	69	53	105	49	SW	Ditto		.04	
20	73	46	108	40	W	Ditto		.01	
21	75	54	110	50	——	Ditto			
22	72	51	110	50	SW	Brisk		.54	
23	64	47	97	43	W	Strong		.10	
24	66	40	103	34	——	Little		.22	
25	70	46	105	40	——	Ditto			
26	67	52	82	51	——	Ditto		.48	
27	74	53	99	50	——	Strong		.05	
28	79	57	108	53	S	Brisk			
29	73	54	95	49	W	Strong			
30	70	49	95	46	SW	Brisk		.12	
	72.6	48.73	100.83	44.23				2.63	

Mean Pressure from the 3 daily observations 29.846 inches.
—— Temperature ..... Ditto ..... 62°.32
—— Dew Point ..... Ditto ..... 56°.56
—— Degree of Dryness ... Ditto ..... 5°.75
—— Degree of Moisture .. Ditto ..... .835
—— Force of Vapour ..... Ditto ..... .501 inch.
Least observed degree of Moisture ..... .377
Maximum Temperature in Shade ..... 87°
Minimum Temperature in ditto ..... 38°
Maximum Temperature in the Sun .....125°
Minimum of Terrestrial Radiation ..... 33°
Mean Temperature of External Air ..... 60°.66

WINDS.

North .....0 days	N. East .....0 days
South .....4 ..	S. East .....2 ..
East .....0 ..	N. West .....1 ..
West .....17 ..	S. West.....6 ..

30 days.

Amount of Rain.....2.63 inch.

JULY.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
	M. 1	29.835	55	50	5	Fine	29.831	58	58	—	Showery	29.873	47	47	—	[Shower Clear, after Hail
○	T. 2	—.919	54	54	—	Ditto	—.948	61	49	12	Fine, wth clouds	—.998	51	51	—	Fine
	W. 3	30.014	58	52	6	Ditto	30.031	61	61	—	Fine, Thundr	30.121	54	54	—	Ditto
	Th. 4	—.178	58	51	7	Ditto	—.172	64	50	14	Fine	—.168	62	57	5	Overcast
	F. 5	—.167	64	60	4	Slight Haze	—.114	74	60	14	Ditto [Dry	29.997	57	57	—	Clear and Fine
	S. 6	29.857	66	61	5	Fine	29.774	76	51	25	Ditto, & very	—.656	64	62	2	Very Fine
	S. 7	—.612	66	66	—	Cloudy	—.666	69	69	—	Sultry, Showers	—.767	62	62	—	Cloudy
	M. 8	—.808	61	61	—	Ditto	—.856	63	63	—	Heavy Rain	30.022	60	60	—	Do. rather Windy
	T. 9	30.104	57	54	3	Ditto [ing	30.108	63	59	4	Cloudy	—.080	56	56	—	Very Fine
☾	W. 10	—.031	61	61	—	Misty, Clear-	29.992	71	62	9	Fine	29.959	60	60	—	Ditto
	Th. 11	29.992	63	61	2	Fine	—.937	67	63	4	Ditto	—.894	62	62	—	Ditto
	F. 12	—.852	58	56	2	Dry Haze	—.899	62	54	8	Dry Haze	—.860	55	55	—	Fine
	S. 13	—.921	55	52	3	Overcast, Cool	—.854	62	53	9	Fine	—.922	55	55	—	Ditto
	S. 14	—.991	65	57	8	Very Fine	30.002	70	60	10	Ditto	—.958	59	59	—	Cloudy
	M. 15	30.006	64	61	3	Ditto	—.036	71	53	18	Ditto	30.131	58	58	—	Very Fine
	T. 16	—.197	63	57	6	Ditto	—.194	75	52	23	Hot and Dry	—.211	61	61	—	Ditto
●	W. 17	—.220	66	62	4	Ditto	—.209	76	60	16	Very Fine	—.194	63	63	—	Ditto
	Th. 18	—.162	69	67	2	Ditto	—.105	78	60	18	Ditto	—.011	66	64	2	Cloudy, Sultry
	F. 19	29.906	61	61	—	Ditto	29.803	75	66	9	Sultry	29.772	58	58	—	Very Fine
	S. 20	—.690	61	61	—	Fine	—.618	69	56	13	Cloudy	—.671	58	58	—	Showery
	S. 21	—.778	61	61	—	Cloudy	—.796	65	65	—	Showers	—.877	57	57	—	Fine
	M. 22	—.835	57	57	—	Overcast	—.697	63	63	—	Rain	—.755	58	58	—	Clear
☽	T. 23	—.765	62	61	1	Cloudy	—.638	69	69	—	Ditto	—.912	64	64	—	Ditto
	W. 24	30.024	58	55	3	Clear and Fine	30.074	70	56	14	Fine	30.196	56	56	—	Fine
	Th. 25	—.289	60	58	2	Fine	—.281	72	55	17	Ditto	—.327	69	69	—	Very Fine
	F. 26	—.311	61	61	—	Ditto	—.282	71	65	6	Ditto	—.250	64	64	—	Ditto
	S. 27	—.265	70	69	1	Very Fine	—.259	79	65	14	Very Hot	—.255	65	65	—	Ditto
	S. 28	—.287	72	67	5	Very Hot	—.257	80	64	16	Ditto	—.281	64	64	—	Ditto
	M. 29	—.305	66	64	2	Dry Haze	—.308	76	64	12	Ditto	—.280	60	60	—	Ditto
	T. 30	—.423	64	64	—	Cloudy	—.425	67	60	7	Fine	—.458	54	54	—	Fine, Cool
⊙	W. 31	—.429	59	52	7	Overcast	—.375	68	55	13	Ditto	—.351	57	56	1	Clear and Fine
		30.037	61.77	59.16	2.61		30.018	69.19	59.35	9.83		30.039	59.22	58.90	.32	

JULY.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	66	—40	95	—32	W	Brisk	.20	On the afternoon of the 1st, about 7 P.M., there was a shower of hail, and at night the Thermometer in the Radiator fell to the freezing point. The amount of Rain was considerably less than the usual quantity for this month, and none fell after the 23rd, on the afternoon of which nearly half an inch was precipitated. The Temperature in the Shade was frequently above 80°, and throughout the month the weather was generally very warm, and on the whole very favourable for vegetation and the operations of the Garden.
2	76	45	101	38	SW	Little		
3	69	44	101	39	W	Ditto		
4	75	51	99	45	——	Ditto		
5	76	49	107	43	SW	Ditto		
6	77	50	105	45	SE	Ditto	.01	
7	68	55	69	54	S	Ditto	.20	
8	71	52	93	50	W	Ditto	.24	
9	73	45	110	38	N	Ditto		
10	76	51	111	46	NW	Ditto		
11	69	53	96	48	N	Ditto		
12	61	50	70	45	NE	Ditto		
13	64	47	85	42	SW	Ditto		
14	73	54	111	51	——	Ditto		
15	75	45	111	40	NE	Ditto		
16	79	50	115	45	E	Ditto		
17	84	55	123	50	NW	Ditto		
18	81	57	105	54	W	Ditto	.02	
19	76	57	102	52	SW	Ditto		
20	70	48	92	45	W	Ditto	.18	
21	70	46	107	39	——	Ditto	.05	
22	73	54	76	50	S	Brisk	.26	
23	70	48	90	43	SW	Ditto	.40	
24	75	48	105	44	W	Little		
25	77	45	103	38	——	Ditto		
26	80	57	112	52	SW	Ditto		
27	+86	57	+126	52	N	Ditto		
28	82	51	118	46	E	Ditto		
29	79	50	100	45	——	Ditto		
30	79	47	110	41	NE	Brisk		
31	79	47	100	43	——	Little		
	74·48	49·93	104·93	45.00			1.56	

Mean Pressure from the 3 daily observations 30.031 inches.
—— Temperature .....Ditto..... 63°.39
—— Dew Point .....Ditto..... 59°.13
—— Degree of Dryness ....Ditto..... 4°.25
—— Degree of Moisture....Ditto..... .876
—— Force of Vapour.....Ditto..... .545 inch.
Least observed degree of Moisture..... .442
Maximum Temperature in Shade..... 86°
Minimum Temperature in ditto..... 40°
Maximum Temperature in the Sun .... 126°
Minimum of Terrestrial Radiation ..... 32°
Mean Temperature of External Air..... 62°.20

WINDS.

North.....3 days.	N. East ....4 days.
South.....2 ..	S.East.....1 ..
East .....3 ..	N. West....2 ..
West .....9 ..	S. West ....7 ..

31 days.

Amount of Rain ..... 1.56 inch.

AUGUST.

	Morning.						Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
Th.	1	30.379	59	53	6	Cloudy & Cool	30.394	64	53	11	Cloudy & Cool	30.383	54	53	1	Fine
F.	2	—.372	56	56	—	Slight Rain	—.332	65	51	14	Cloudy	—.326	59	57	2	Overcast
S.	3	—.292	58	55	3	Overcast	—.310	65	55	10	Overcast	—.349	61	61	—	Fine
S.	4	—.351	58	56	2	Fine but Cool	—.285	68	42	26	Fine, very Dry	—.223	56	56	—	Ditto
M.	5	—.111	60	58	2	Fine	—.100	65	50	15	Cloudy & Fine	—.106	57	57	—	Do. Overcast
T.	6	—.152	55	49	6	Cold and Dry	—.135	64	40	24	Fine, very Dry	—.153	50	50	—	Clear & Fine
W.	7	—.134	55	51	4	Fine but Cool	—.081	69	43	26	Ditto	—.077	58	52	6	Overcast
☾ Th.	8	—.076	57	50	7	Ditto	—.058	70	44	26	Ditto	—.062	60	57	3	Ditto
F.	9	—.055	63	58	5	Ditto	—.014	74	51	23	Cloudy	—.006	60	54	6	Very Fine
S.	10	—.017	62	56	6	Fine	29.988	70	51	19	Fine	29.978	58	58	—	Lightning and
S.	11	29 985	60	52	8	Ditto	—.996	67	48	19	Do. & Cloudy	30.117	52	52	—	Clear [Rain
M.	12	30.188	55	47	8	Clear	30.158	65	43	22	Fine	—.037	58	52	6	Fine
T.	13	29.839	57	50	7	Overcast	29.752	66	50	16	Overcast	29.669	57	52	5	Cloudy
W.	14	— 639	55	52	3	Fine	—.649	62	45	17	Cloudy	—.679	56	52	4	Fine
● Th.	15	—.764	57	57	—	Heavy Dew	—.859	65	48	17	Ditto & Fine	—.757	58	56	2	Overcast & Fine
F.	16	—.791	57	46	11	Fine	—.828	64	48	16	Fine	—.905	53	53	—	Ditto
S.	17	—.913	55	50	5	Ditto	—.879	67	47	20	Ditto	—.843	58	58	—	Ditto
S.	18	—.822	60	52	8	Slightly Overcast	—.780	66	66	—	Slight Rain	—.773	58	58	—	Rain
M.	19	—.825	63	63	—	Ditto	—.742	68	55	13	Cloudy	—.929	59	54	5	Fine
T.	20	—.979	63	55	8	Fine	—.953	70	51	19	Dry and Fine	—.915	63	58	5	Slightly Overcast
W.	21	—.891	64	60	4	Overcast	—.828	74	57	17	Ditto	—.691	63	63	—	Strong Gale
☽ Th.	22	—.771	56	56	—	Clear & Windy	—.737	66	43	23	Dry & Windy	—.679	58	58	—	Slightly Clouded
F.	23	—.654	58	50	8	Do. very Dry	—.678	65	50	15	Ditto	—.803	55	52	3	Calm and Fine
S.	24	— 948	58	52	6	Overcast	—.980	67	48	19	Fine	30.011	58	58	—	Overcast & do.
S.	25	30.127	58	54	4	Fine	30.180	62	48	14	Ditto	—.279	55	50	5	Fine
M.	26	—.305	57	48	9	Ditto	—.281	68	48	20	Ditto	—.235	55	54	1	Very Fine
T.	27	—.244	55	55	—	Do. with Dew	—.178	71	51	20	Ditto	—.211	57	55	2	Clear and Do.
W.	28	—.244	60	57	3	Ditto	—.221	74	47	27	Do. very Dry	—.198	59	56	3	Ditto
Th.	29	—.158	58	58	—	Do. slight haze	—.035	74	56	18	Ditto	29.927	61	56	5	Very Fine
○ F.	30	29.893	57	52	5	Fine [Rainy	29.775	65	41	24	Ditto	—.266	55	55	—	Heavy Rain
S.	31	28.985	50	50	—	Boisterous and	—.097	48	48	—	Heavy Rain	—.333	50	50	—	Do. & Boisterous
		29.996	57.93	53.48	4.45		29.976	66 71	48.97	17.74		29.965	57.12	55.06	2.06	

AUGUST.

Temperature.					Wind.		Rain.		Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In.	Pts.	
1	67	45	95	29	N	Brisk			No rain having fallen in the last 8 days of the preceding month, that on the 30th of this was the first of any account after a period of 5 weeks drought, the 10th and 18th being the only exception, and on these days it rained but very little. A great degree of dryness prevailed in the atmosphere, and vegetation suffered considerably; many trees even lost a great portion of their foliage. The temperature was scarcely so high as the average. The hottest days were the two immediately preceding the heavy fall of rain on the 30th and 31st. The rain on the latter was accompanied with very boisterous wind which did much injury to the fruit, much of the finest of which was blown down. On the afternoon of the 4th, about 4 P. M., a whirlwind swept through the Garden in the direction of nearly from North to South, tearing up some plants of gourds and tossing them and their fruit in the air. Four large sashes were lifted by it and broken to pieces; one of them was carried over a wall and found at the distance of 60 feet from the pits.
2	65	52	85	51	——	Ditto			
3	67	45	96	37	——	Little			
4	74	45	110	39	NE	Ditto			
5	70	43	93	35	NW	Brisk			
6	70	—36	98	—29	NE	Ditto			
7	75	45	111	40	——	Little			
8	76	51	114	46	——	Ditto			
9	79	44	111	38	SW	Ditto			
10	78	44	+117	39	W	Ditto	.04		
11	78	37	97	30	——	Ditto			
12	74	48	105	42	NE	Ditto			Mean Pressure from the 3 daily observations 29.979 inches.
13	70	48	90	41	S	Ditto			—— Temperature ..... Ditto ..... 60°.58
14	70	40	94	34	NE	Ditto			—— Dew Point ..... Ditto ..... 52°.50
15	70	46	94	39	N	Ditto			—— Degree of Dryness ... Ditto ..... 8°.08
16	69	40	93	33	NW	Ditto			—— Degree of Moisture ... Ditto ..... .766
17	75	44	100	37	W	Ditto			—— Force of Vapour ..... Ditto ..... .436 inch.
18	74	56	100	55	——	Ditto	.11		Least observed degree of Moisture ..... .415
19	72	48	96	41	——	Brisk			Maximum Temperature in Shade ..... 80°
20	74	60	96	58	——	Ditto			Minimum Temperature in ditto ..... 36°
21	77	48	90	43	——	Ditto			Maximum Temperature in the Sun .....117°
22	71	48	86	43	——	Strong			Minimum of Terrestrial Radiation ..... 29°
23	71	47	83	41	——	Ditto			Mean Temperature of External Air ..... 59°.40
24	74	47	95	41	SW	Little			
25	65	62	90	45	——	Ditto			WINDS.
26	75	40	100	34	NE	Ditto			North.....4 days. | N. East.....7 days.
27	78	45	103	40	W	Ditto			South.....1 .. | S. East .....0 ..
28	+80	44	105	39	——	Ditto			East.....0 .. | N. West .....3 ..
29	80	51	100	47	SW	Brisk			West.....12 .. | S. West.....4 ..
30	70	45	86	44	W	Ditto	.86		31 days.
31	55	46	66	45	NW	Strong	.92		
	72.35	46.45	96.74	40.48			1.93		Amount of Rain.....1.93 inch.

SEPTEMBER.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
S.	1	29.546	50	50	—	Cloudy & windy	29.582	56	46	10	Cloudy & windy	29.777	48	48	—	Cold & windy
M.	2	—.983	48	48	—	Fine but Cool	—.984	59	42	17	Fine	—.880	52	52	—	Slight Rain
T.	3	—.720	55	55	—	Overcast	—.638	56	56	—	Heavy showers	—.700	48	48	—	Cloudy
W.	4	—.937	52	48	4	Windy	30.050	58	41	17	Fine but Cool	30.237	47	43	4	Clear & Cold
Th.	5	30.329	50	43	7	Clear & Cold	—.330	58	42	16	Ditto	—.377	48	43	5	Ditto
F.	6	—.309	53	49	4	Ditto	—.243	63	46	17	Fine	—.184	51	48	3	Ditto
☾ S.	7	—.086	55	51	4	Overc. & Cold	—.028	67	53	14	Ditto	—.002	51	49	2	Slightly overcast
S.	8	29.841	53	53	—	Rain	29.801	65	65	—	Cloudy & showery	29.896	58	58	—	Cloudy, showery
M.	9	—.995	56	56	—	Ditto	30.020	65	63	2	Cloudy	30.079	57	57	—	Clear
T.	10	30 078	57	53	4	Overcast	29.948	65	55	10	Slight Haze	29.974	58	58	—	Overcast
W.	11	29.798	57	57	—	Rain	—.742	64	64	—	Overcast	—.843	54	54	—	Clearing
Th.	12	—.965	52	47	5	Clear	30.021	59	43	16	Fine	30.124	45	45	—	Clear
● F.	13	30.144	50	50	—	Fine	—.119	63	50	13	Ditto	—.056	50	50	—	Fine
S.	14	29.928	58	52	6	Ditto [Dew	29.788	69	58	11	Very Fine	29.942	52	52	—	Clear
S.	15	—.949	49	49	—	Do. with heavy	—.915	62	48	14	Ditto	—.864	51	50	1	Fine
M.	16	—.695	57	57	—	Fine	—.639	65	65	—	Ditto	—.628	54	54	—	Ditto
T.	17	—.522	54	54	—	Rain	—.593	64	55	9	Cloudy & Fine	—.798	50	50	—	Clear
W.	18	—.772	52	52	—	Heavy Dew	—.791	62	53	9	Ditto	—.901	51	51	—	Fine
Th	19	30.026	50	50	—	Ditto	30.065	62	53	9	Ditto	30.183	46	46	—	Clear
☽ F.	20	—.262	52	52	—	Foggy	—.218	63	55	8	Slight Haze	—.264	47	47	—	Fine
S.	21	—.180	52	52	—	Ditto	—.130	64	58	6	Fine	—.086	50	50	—	Ditto
S.	22	—.061	56	56	—	Ditto	—.020	66	54	12	Very Fine	29.962	55	55	—	Ditto
M.	23	29.897	52	52	—	Ditto	29.825	66	60	6	Cloudy	—.666	50	50	—	Fine
T.	24	—.435	59	59	—	Rain	—.409	61	61	—	Rain	—.494	60	60	—	Do. & Cloudy
W.	25	—.688	58	58	—	Fine	—.732	65	57	8	Fine	—.768	57	53	4	Fine
Th	26	—.785	56	56	—	Ditto	—.816	64	64	—	Do. s[lt] showers	—.912	46	46	—	Ditto & Clear
F.	27	—.901	50	50	—	Foggy	—.846	62	51	11	Very Fine	—.785	46	46	—	Ditto
○ S.	28	—.602	55	55	—	Overcast	—.594	57	57	—	Rain	—.721	51	51	—	Fine
S.	29	—.907	49	49	—	Fine	30.026	60	51	9	Fine	30.156	52	52	—	Ditto
M.	30	30.248	45	45	—	Foggy	—.254	61	53	8	Very Fine	—.299	45	45	—	Ditto
		29.919	53.06	51.93	1.13		29.907	62.36	53.96	8.40		29.918	51.0	50.37	.63	

SEPTEMBER.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	56	38	72	31	N	Strong		
2	64	50	80	48	W	Brisk	.05	
3	63	46	78	42	S	Little	.39	
4	60	41	75	37	N	Strong		
5	63	42	81	37	NE	Little		
6	68	48	85	45	——	Brisk		
7	69	50	84	48	——	Ditto		
8	65	52	70	50	——	Ditto	.16	
9	66	52	80	51	——	Little		
10	66	50	79	47	E	Ditto	.03	
11	69	46	79	42	NW	Ditto		
12	63	35	83	—29	W	Brisk		
13	63	47	80	43	SW	Ditto		
14	+72	39	91	34	S	Little	.03	
15	68	45	91	39	W	Ditto	.02	
16	67	50	87	49	S	Ditto	.50	
17	67	43	88	37	W	Ditto	.04	
18	62	40	81	33	——	Ditto		
19	62	38	85	31	——	Ditto	.06	
20	62	43	84	36	E	Ditto		
21	67	42	96	38	——	Ditto		
22	69	45	+98	42	S	Ditto		
23	66	49	82	43	——	Ditto	.02	
24	64	52	75	47	SW	Strong	.09	
25	67	47	80	43	S	Brisk	.02	
26	65	—34	86	30	——	Little	.01	
27	67	42	86	36	——	Ditto		
28	60	37	63	31	——	Ditto	.12	
29	68	38	85	34	W	Ditto	.01	
30	67	39	87	34	S	Ditto		
	65.16	44.00	82.36	39.56			1.55	

Rain in this month was of frequent occurrence; but the amount was considerably below the usual quantity. The temperature was also below the mean by several degrees. The 1st was cold and windy. On the night of the 16th and morning of the 17th about half an inch of rain fell. The night of the 17th was clear, with Aurora Borealis extending to an elevation of about 45°. In the latter half of the month the mornings were generally foggy. The night of the 12th was the coldest in the month, but there was no frost to injure vegetation. The South winds being prevalent, the temperature was consequently well maintained.

Mean Pressure from the 3 daily observations 29.914 inches.
—— Temperature ..... Ditto ..... 55°.47
—— Dew Point ..... Ditto ..... 52°.08
—— Degree of Dryness .... Ditto ..... 3°.38
—— Degree of Moisture .. Ditto ..... .886
—— Force of Vapour ..... Ditto ..... .428
Least observed degree of Moisture ..... .555
Maximum Temperature in Shade ..... 72°
Minimum Temperature in ditto ..... 34°
Maximum Temperature in the Sun ..... 98°
Minimum of Terrestrial Radiation ..... 29°
Mean Temperature of External Air ..... 54°.58

WINDS.

North	2 days	N. East	5 days.
South	10 ..	S. East	0 ..
East	3 ..	N. West	1 ..
West	7 ..	S. West	2 ..

30 days.

Amount of Rain..... 1.55 inch.

OCTOBER.

	Morning.						Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
T.	1	30.303	45	45	—	Dense Fog	30.287	57	52	5	Fine	30.273	45	45	—	Slight Fog
W.	2	—.232	48	48	—	Ditto	—.189	60	49	11	Ditto	—.160	53	53	—	Overcast
Th.	3	—.078	50	50	—	Foggy	—.053	57	52	5	Light Haze	—.092	53	53	—	Slight Fog
F.	4	—.146	47	47	—	Ditto	—.130	59	55	4	Very Fine	—.136	46	46	—	Very Clear
S.	5	—.135	50	50	—	Fine	—.114	59	53	6	Cloudy	—.138	47	47	—	Fine
☾ S.	6	—.147	50	50	—	Ditto	—.119	60	52	8	Very Fine	—.150	48	48	—	Ditto & Clear
M.	7	—.156	50	50	—	Ditto	—.136	58	58	—	Ditto	—.104	47	45	2	Fine
T.	8	—.034	46	46	—	Dense Fog	29.993	60	52	8	Ditto	—.056	46	46	—	Ditto
W.	9	—.140	49	49	—	Overcast	30.199	56	51	5	Cloudy	—.257	49	49	—	Clear
Th.	10	—.239	45	43	2	Fine	—.195	57	49	8	Fine	—.111	43	43	—	Fine
F.	11	—.017	40	40	—	Dense Fog	29.977	58	58	—	Overcast	29.962	45	45	—	Ditto
S.	12	29.963	48	48	—	Ditto	—.901	59	50	9	Cloudy	30.002	42	42	—	Clear
● S.	13	30.130	39	39	—	Clear	30.057	52	52	—	Ditto	29.860	52	52	—	Cloudy
M.	14	29.539	56	56	—	Rain & windy	29.498	58	58	—	Do. w^{h} showers	—.402	53	53	—	Rain
T.	15	—.236	48	48	—	Clearing	—.188	53	41	12	Fine	—.058	48	48	—	Heavy Rain
W.	16	—.205	44	44	—	Cold & rainy	—.292	49	41	8	Ditto	—.413	44	44	—	Showery
Th.	17	—.571	48	48	—	Showery	—.642	51	51	—	Rain	—.764	45	45	—	Cloudy
F.	18	—.436	45	45	—	Fine	—.613	51	45	6	Overcast	—.464	47	47	—	Rain
S.	19	—.463	44	44	—	Damp	—.410	53	44	9	Fine	—.410	39	39	—	Clear
☽ S.	20	—.576	35	35	—	Frosty	—.686	52	48	4	Ditto	—.817	43	43	—	Overcast
M.	21	—.706	56	56	—	Rain	—.657	60	60	—	Windy w^{h} showers	—.588	57	57	—	Stormy & Wet
T.	22	—.646	55	55	—	Cold and raw	—.683	63	59	4	Fine	—.672	53	53	—	Rain
W.	23	—.436	55	55	—	Stormy, Rain	—.490	57	50	7	Strong Gale	—.753	50	50	—	Overcast & fine
Th.	24	—.697	56	56	—	Fine	—.541	63	56	7	Fine	—.528	52	52	—	Very Fine
F.	25	—.474	54	54	—	Ditto	—.423	62	55	7	Ditto	—.343	55	55	—	Overcast & Do.
S.	26	—.545	55	55	—	Very Fine	—.513	63	55	8	Ditto	—.623	56	56	—	Very Fine
S.	27	—.863	47	47	—	Ditto	—.940	59	59	—	Slight showers	—.813	55	55	—	Ditto
⊙ M.	28	—.753	55	55	—	Hazy	—.743	61	61	—	Hazy	—.769	51	51	—	Fine, Slight Fog
T.	29	—.719	52	52	—	Foggy	—.733	64	64	—	Fine	—.876	51	51	—	Fine
W.	30	30.000	45	45	—	Dense Fog	30.006	63	56	7	Very Fine	30.048	46	46	—	Ditto
Th.	31	—.066	45	45	—	Ditto	—.026	53	53	—	Foggy	—.065	55	55	—	Overcast
		29.821	48.44	48.38	.06		29.820	57.64	53.19	4.45		29.820	48.90	48.83	.06	

OCTOBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	62	40	82	33	S	Little		The first ten days of this month were generally fine; sometimes foggy, but no rain fell. After this, however, the weather was very unsettled up to the 23rd, with rain and strong gales of wind, particularly on the 14th, 17th, 21st and 23rd, by which orchards were strewed with fruit almost ripe, and even trees were thrown down in many places. The temperature was about the average. The thermometer was lowest on the 19th, being then several degrees below the freezing point.
2	63	40	85	33	NE	Ditto		
3	60	39	80	34	SW	Ditto		
4	62	38	96	33	NE	Ditto		
5	61	39	80	34	——	Ditto		
6	64	40	84	34	E	Ditto		
7	60	40	85	36	NE	Ditto		
8	64	41	85	34	E	Ditto		
9	60	43	85	37	NE	Ditto		
10	64	33	93	29	E	Brisk		
11	65	40	92	38	SW	Little	.01	
12	61	33	81	29	W	Brisk	.20	
13	60	48	68	47	S	Little	.10	
14	60	45	83	43	SW	Strong	.50	
15	57	39	81	35	——	Brisk	.06	
16	52	41	69	35	NW	Little	.10	
17	54	37	65	32	——	Strong		
18	52	37	62	34	W	Little	.13	
19	56	—29	80	—23	——	Ditto		
20	57	38	82	34	NW	Ditto	.03	
21	61	53	72	51	S	Strong	.33	
22	65	51	86	50	SW	Brisk	.66	
23	59	40	76	35	S	Strong		
24	+68	46	80	40	——	Little		
25	67	49	80	44	SE	Ditto		
26	66	39	88	38	S	Brisk	.01	
27	61	49	77	46	E	Little	.17	
28	62	47	80	45	——	Ditto	.01	
29	67	38	95	42	S	Ditto		
30	67	42	+97	39	N	Ditto		
31	62	40	75	38	SW	Ditto	.06	
	61.25	41.09	81.42	37.25			2.35	

Mean Pressure from the 3 daily observations 29.820 inches.
—— Temperature.....Ditto..... 51°.66
—— Dew Point.....Ditto..... 50°.13
—— Degree of Dryness....Ditto..... 1°.52
—— Degree of Moisture....Ditto..... .941
—— Force of Vapour.....Ditto..... .400 inch.
Least observed degree of Moisture..... .657
Maximum Temperature in the Shade.... 68°
Minimum Temperature in ditto..... 29°
Maximum Temperature in the Sun..... 97°
Minimum of Terrestrial Radiation..... 23°
Mean Temperature of External Air..... 51°.17

WINDS.

North	1 days.	N. East.....	5 days.
South	7 ..	S. East.....	1 ..
East.....	5 ..	N. West	3 ..
West.....	3 ..	S. West.....	6 ..

31 days.

Amount of Rain ..... 2.35 inch.

NOVEMBER.

		Morning.					Noon.					Night.				
1833.	Days.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.	Barom.	Hygrometer.			Weather.
F.	1	29.839	56	56	—	Rain	29.814	61	57	4	Fine	30.072	46	46	—	Clear
S.	2	30.043	46	46	—	Overcast	—.907	55	50	5	Ditto	29.705	52	50	2	Fin
S.	3	29.740	47	38	9	Clear	—.859	50	40	10	Ditto	—.986	40	40	—	Ditto
M.	4	30.152	35	35	—	Frosty	30.154	50	38	12	Ditto	30.295	38	38	—	Clear
☾ T.	5	—.304	44	41	3	Cold and Bleak	—.217	49	49	—	Rain	—.126	50	50	—	Windy wth rain
W.	6	—.017	55	55	—	Rain	—.008	57	52	5	Cloudy	29.990	48	48	—	Fine
Th.	7	29.982	44	40	4	Slightly overcast	29.665	45	45	—	Heavy Rain	—.511	37	37	—	Overcast
F.	8	—.711	34	34	—	Clear	—.819	44	39	5	Fine	—.908	40	40	—	Ditto
S.	9	30.019	40	40	—	Overcast	30.059	42	37	5	Ditto	30.136	33	33	—	Clearing
S.	10	—.156	45	45	—	Ditto	—.137	52	48	4	Overcast	—.111	48	48	—	Overcast
● M.	11	—.091	48	42	6	Ditto	—.067	51	51	—	Rain	—.113	45	45	—	Ditto
T.	12	—.236	38	38	—	Dense Fog	—.248	45	45	—	Dense Fog	—.277	41	41	—	Dense Fog
W.	13	—.309	42	42	—	Ditto	—.293	45	45	—	Foggy	—.249	38	38	—	Clearing
Th.	14	—.184	29	29	—	Frosty	—.162	40	40	—	Fine	—.152	35	35	—	Overcast
F.	15	—.078	36	36	—	Overcast & Cold	—.036	40	40	—	Overcast & Cold	29 955	37	37	—	Ditto
	16	29.896	39	35	4	Fine	29.894	44	39	5	Overcast	—.936	40	40	—	Ditto
	17	30.031	45	45	—	Foggy	30.034	52	52	—	Hazy	30.176	48	48	—	Hazy
M	18	—.295	49	49	—	Ditto	—.280	50	50	—	Overcast	—.277	51	51	—	Overcast
☽ T.	19	—.264	49	49	—	Thickly overcast	—.114	51	47	4	Hazy	—.174	42	42	—	Foggy
W.	20	—.141	39	39	—	Foggy	—.088	44	41	3	Fine	—.040	49	49	—	Overcast
Th.	21	—.055	42	42	—	Fine	29.994	49	48	1	Overcast	29.973	49	49	—	Ditto
F.	22	29.676	52	51	1	Cloudy	—.526	55	52	3	Cloudy&windy	—.458	50	50	—	Rain
S.	23	—.716	43	39	4	Slightly overcast	—.733	47	41	6	Fine	—.723	40	40	—	Very Clear
S.	24	—.715	42	40	2	Fine	—.470	49	49	—	Heavy Rain	—.460	38	38	—	Heavy Rain
M.	25	—.705	32	32	—	Frosty	—.764	41	38	3	Fine	30.001	32	32	—	Clear & frosty
T.	26	30.186	25	25	—	Sharp frost	30.180	37	37	—	Ditto	—.116	32	32	—	Slightly overcast
○ W.	27	29.894	38	38	—	Slightly overcast	29.813	42	34	8	Ditto	29.632	32	32	—	Clear & Fine
Th.	28	—.424	42	42	—	Fine	—.270	49	49	—	Rain	—.175	38	38	—	Stormy & Wet
F.	29	—.231	44	38	6	Clear	—.369	47	47	—	Ditto	—.715	44	40	4	Fine
S.	30	30.043	39	35	4	Ditto	30.124	47	44	3	Fine	30.135	48	48	—	Overcast
		29.971	41.96	40.53	1.43		29.936	47.66	44.80	2.86		29.952	42.03	41.83	.20	

NOVEMBER.

Temperature.					Wind.		Rain.	Remarks.
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	
1	+62	41	+77	37	W	Brisk		
2	57	45	71	40	SW	Ditto		
3	53	33	66	26	W	Ditto		
4	51	29	67	22	——	Little		
5	55	48	67	44	SW	Brisk	.10	
6	57	41	67	35	——	Ditto		
7	46	32	60	29	——	Little	1.02	
8	46	36	64	31	NW	Brisk		
9	50	30	66	24	W	Little		
10	53	32	56	26	SW	Ditto		
11	50	40	51	36	——	Ditto	.03	
12	50	39	52	37	S	Ditto		
13	50	39	52	37	E	Ditto	.02	
14	43	30	62	28	SE	Ditto		
15	45	33	53	28	S	Ditto		
16	50	34	54	30	——	Ditto		
17	55	44	60	40	——	Ditto	.02	
18	53	47	60	46	SW	Ditto		
19	51	37	56	35	——	Ditto		
20	49	41	57	36	W	Ditto		
21	59	48	60	44	S	Ditto		
22	55	48	60	46	SW	Strong	.02	
23	48	37	62	29	——	Brisk		
24	51	31	56	25	——	Ditto	.61	
25	41	—24	54	—17	W	Little		
26	44	31	60	27	S	Ditto		
27	50	30	56	25	——	Brisk	.03	
28	52	43	54	39	——	Strong	.53	
29	46	35	55	31	SW	Ditto		
30	51	46	61	42	——	Little		
	50.76	36.46	59.86	33.06			2.38	

This month was, on the whole, favourable for the operations of the Garden. The rain amounted to about the usual quantity, and most of it fell on the 7th, 24th and 28th. On the former of these alone upwards of an inch fell. The wind was from either a South, South West, or West direction throughout the month, with the exception of only three days. The temperature was consequently above the average.

Mean Pressure from the 3 daily observations 29.953 inches.
—— Temperature.....Ditto..... 43°.88
—— Dew Point.....Ditto..... 42°.38
—— Degree of Dryness.....Ditto..... 1°.50
—— Degree of Moisture.....Ditto..... .944
—— Force of Vapour.....Ditto..... .308 inch.
Least observed degree of Moisture..... .660
Maximum Temperature in Shade ..... 62°
Minimum Temperature in ditto..... 24°
Maximum Temperature in the Sun..... 77°
Minimum of Terrestrial Radiation..... 17°
Mean Temperature of External Air..... 43°.61

WINDS.

North.....0 days		N. East.....0 days	
South 8	..	S. East.....1	..
East 1	..	N. West.....1	..
West 6	.	S. West.....13	..

30 days.

Amount of Rain.....2.38 inch.

DECEMBER.

1833.	Days.	Morning. Barom.	Hygrometer.			Weather.	Noon. Barom.	Hygrometer.			Weather.	Night. Barom.	Hygrometer.			Weather.
S.	1	30.141	51	51	—	Hazy	30.061	55	55	—	Drizzly	30.091	50	50	—	Rain
M.	2	—.121	46	46	—	Cloudy	—.115	49	49	—	Very Fine	—.045	42	42	—	Fine
T.	3	29.993	46	46	—	Overcast	29.962	51	46	5	Cloudy	29.966	49	49	—	Cloudy
☾ W.	4	—.683	53	51	2	Cloudy	—.553	56	56	—	Ditto	—.510	56	54	2	Do. & Windy
Th.	5	—.497	47	47	—	Overcast	—.495	48	42	6	Fine	—.537	42	38	4	Clear with lightning
F.	6	—.559	38	38	—	Clear	—.670	46	42	4	Do. but Cold	—.650	42	41	1	Cloudy
S.	7	—.445	51	51	—	Stormy & Wet	—.229	52	52	—	Rain	—.887	40	40	—	Clear [heavy rain
S.	8	30.113	41	41	—	Clear	—.610	50	48	2	Fine	—.728	42	42	—	Strong wind and
M.	9	29.578	55	55	—	Rain	—.568	55	55	—	Rain	—.752	48	48	—	Overcast
T.	10	—.887	40	40	—	Fine	—.966	46	38	8	Fine	—.697	41	41	—	Clear
● W.	11	—.699	40	32	8	Very Clear	—.713	43	35	8	Clear & Cold	—.725	35	35	—	Do. with lightning
Th.	12	—.785	36	36	—	Cloudy	—.862	41	36	5	Ditto	—.993	35	35	—	Very Clear
F.	13	30.094	32	32	—	Frosty	30.128	43	40	3	Ditto	30.182	39	39	—	Overcast
S.	14	—.162	42	42	—	Cloudy	—.145	48	43	5	Ditto	—.143	46	46	—	Fine
S.	15	—.011	48	48	—	Ditto	—.009	53	53	—	Overcast	29.980	53	53	—	Overcast
M.	16	29.746	51	51	—	Rain	29.607	53	53	—	Heavy Rain	—.457	46	46	—	Clear
T.	17	—.381	45	41	4	Cloudy & Windy	—.512	48	40	8	Cloudy & Windy	—.724	44	44	—	Overcast
W.	18	—.494	51	51	—	Strong Gale	—.657	50	42	8	Overcast	—.813	49	49	—	Rain
☽ Th.	19	—.801	53	53	—	Rain	—.688	52	52	—	Rain [showery	—.439	50	50	—	Stormy & Wet
F.	20	—.395	47	42	5	Windy & Clear	—.452	44	44	—	Boisterous and	—.517	45	45	—	Overcast
S.	21	—.355	38	38	—	Overcast	—.497	43	43	—	Boisterous	—.852	35	35	—	Very Clear
S.	22	—.567	43	43	—	Rain	—.385	45	45	—	Drizzly [Rain	—.319	54	54	—	Cloudy
M.	23	—.352	45	45	—	Dense Fog	—.241	48	48	—	Dense fog wh heavy	—.516	43	43	—	Hazy
T.	24	—.415	48	48	—	Hazy	—.312	50	50	—	Heavy Rain	—.356	45	45	—	Very Clear
W.	25	—.526	44	44	—	Cloudy	—.728	40	40	—	Slight Rain	30.068	35	35	—	Clear & Fine
○ Th.	26	30.191	32	32	—	Frosty	—.920	43	43	—	Fine	29.877	45	45	—	Cloudy, slight Rain
F.	27	29.825	40	40	—	Fine [cast	—.796	47	47	—	Ditto	—.695	42	42	—	Rain
S.	28	30.011	34	34	—	Slightly over-	30.008	42	42	—	Overcast & raw	—.810	51	51	—	Ditto
S.	29	29.758	52	52	—	Cloudy & Windy	29.821	52	46	6	Fine	—.791	50	50	—	Cloudy & Fine
M.	30	—.697	50	50	—	Rain	—.631	56	56	—	Showery	—.890	45	45	—	Clear
T.	31	—.679	50	50	—	Ditto	—.558	49	49	—	Stormy & Wet	—.715	45	43	2	Ditto
		29.740	44.80	44.19	.61		29.721	48.32	46.13	2.19		29.762	44.64	44.35	0.29	

DECEMBER.

Temperature.					Wind.		Rain.	
Days.	Max.	Min.	Sun.	Rad.	Direction.	Force.	In. Pts.	Remarks.
1	55	44	58	40	SW	Little	.05	An unusually large quantity of rain for this climate fell in the course of this month. Only four days passed without rain. The amount was upwards of four inches, being nearly two inches above the average. On the 23d there was a very dense fog, and rain fell to the depth of more than an inch. Strong winds were also frequent. The wind was either from West or South West throughout the month, with the exception of only three days. The temperature was high for this period of the season, being 6° above the average.
2	50	40	60	36	W	Ditto	.01	
3	54	47	60	45	——	Ditto		
4	55	46	57	43	SW	Strong	.13	
5	49	38	58	34	W	Brisk	.13	
6	55	41	60	36	——	Ditto	.15	
7	56	35	60	30	SW	Strong	.03	
8	55	41	56	37	NW	Brisk	.16	
9	+56	40	60	34	SW	Strong	.04	
10	48	39	+69	34	——	Little	.01	
11	44	33	60	26	W	Brisk	.06	
12	41	31	59	23	NW	Ditto		
13	49	38	58	34	W	Little		
14	50	43	59	38	——	Ditto	.01	
15	52	51	54	50	SW	Ditto	.06	
16	53	42	55	38	——	Strong	.12	
17	55	42	56	38	W	Ditto	.11	
18	54	44	58	43	——	Little	.12	
19	55	45	57	42	SW	Brisk	.14	
20	49	35	55	33	——	Strong	.76	
21	47	35	50	33	——	Ditto	.06	
22	54	43	55	42	——	Brisk	.11	
23	54	42	55	40	NE	Little	1.13	
24	52	42	58	37	S	Ditto	.26	
25	45	—28	50	—22	SW	Ditto		
26	47	34	48	31	——	Ditto	.20	
27	49	33	57	27	——	Brisk	.21	
28	54	37	60	34	——	Little	.05	
29	53	48	56	45	W	Brisk	.03	
30	56	43	56	39	——	Ditto	.05	
31	52	38	57	32	——	Boisterous	.10	
	51.54	39.67	57.12	.36			4.29	

Mean Pressure from the 3 daily observations 29°.741 inches.
—— Temperature .....Ditto..... 45°.92
—— Dew Point ....Ditto..... 44°.89
—— Degree of Dryness.....Ditto..... 1°.03
—— Degree of Moisture....Ditto..... .962
—— Force of Vapour .....Ditto..... .338 inch.
Least observed degree of Moisture ..... .745
Maximum Temperature in Shade ..... 56°
Minimum Temperature in ditto ..... 28°
Maximum Temperature in the Sun ..... 69°
Minimum of Terrestrial Radiation ..... 22°
Mean Temperature of External Air ..... 45°.6

WINDS.

North	0 days	N. East.....	0 days.
South	1 ..	S. East	1 ..
East	0 ..	N. West....	2 ..
West .....12 ..		S. West ....15 ..	

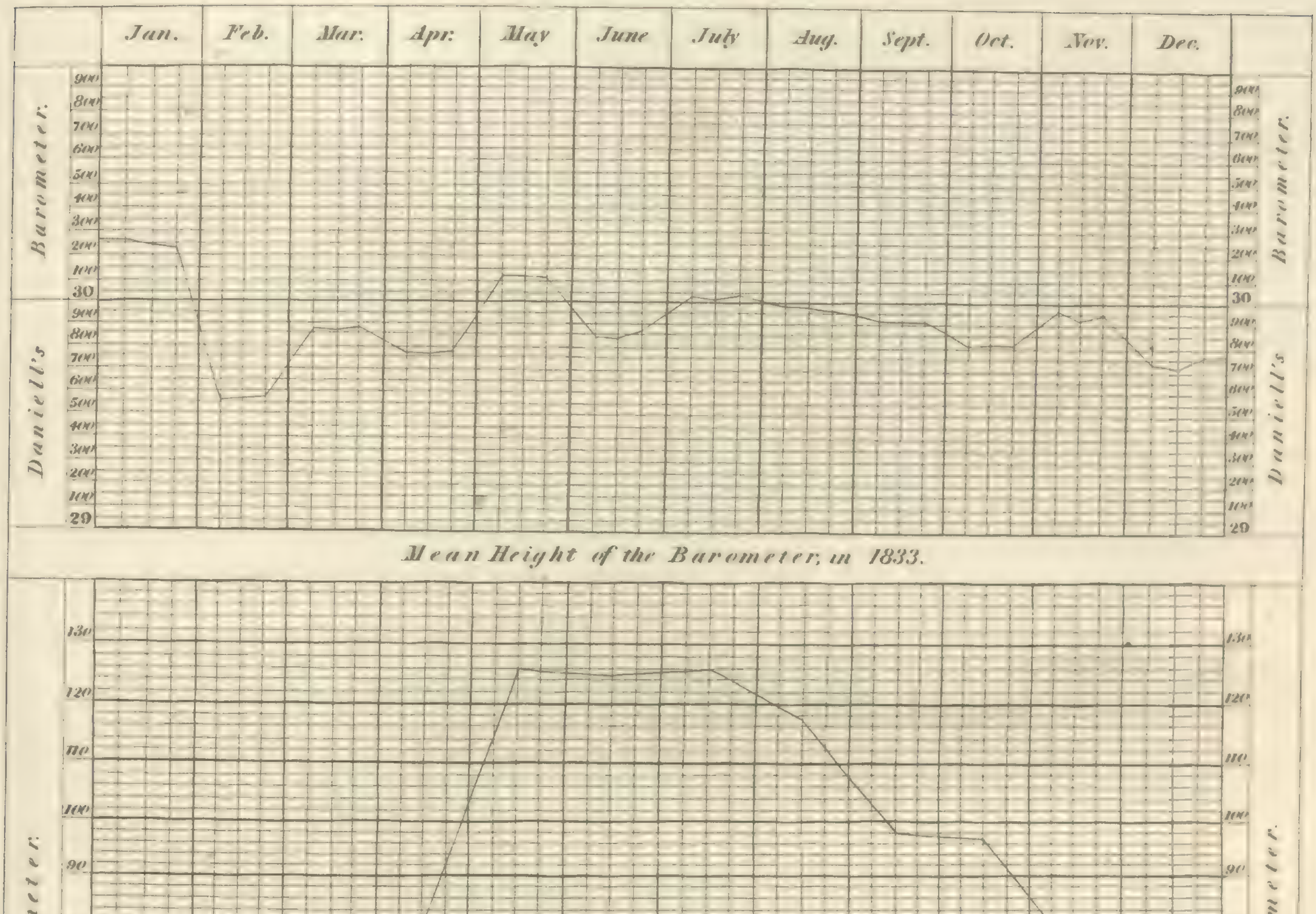
31 days.

Amount of Rain..... 4.29 inch.

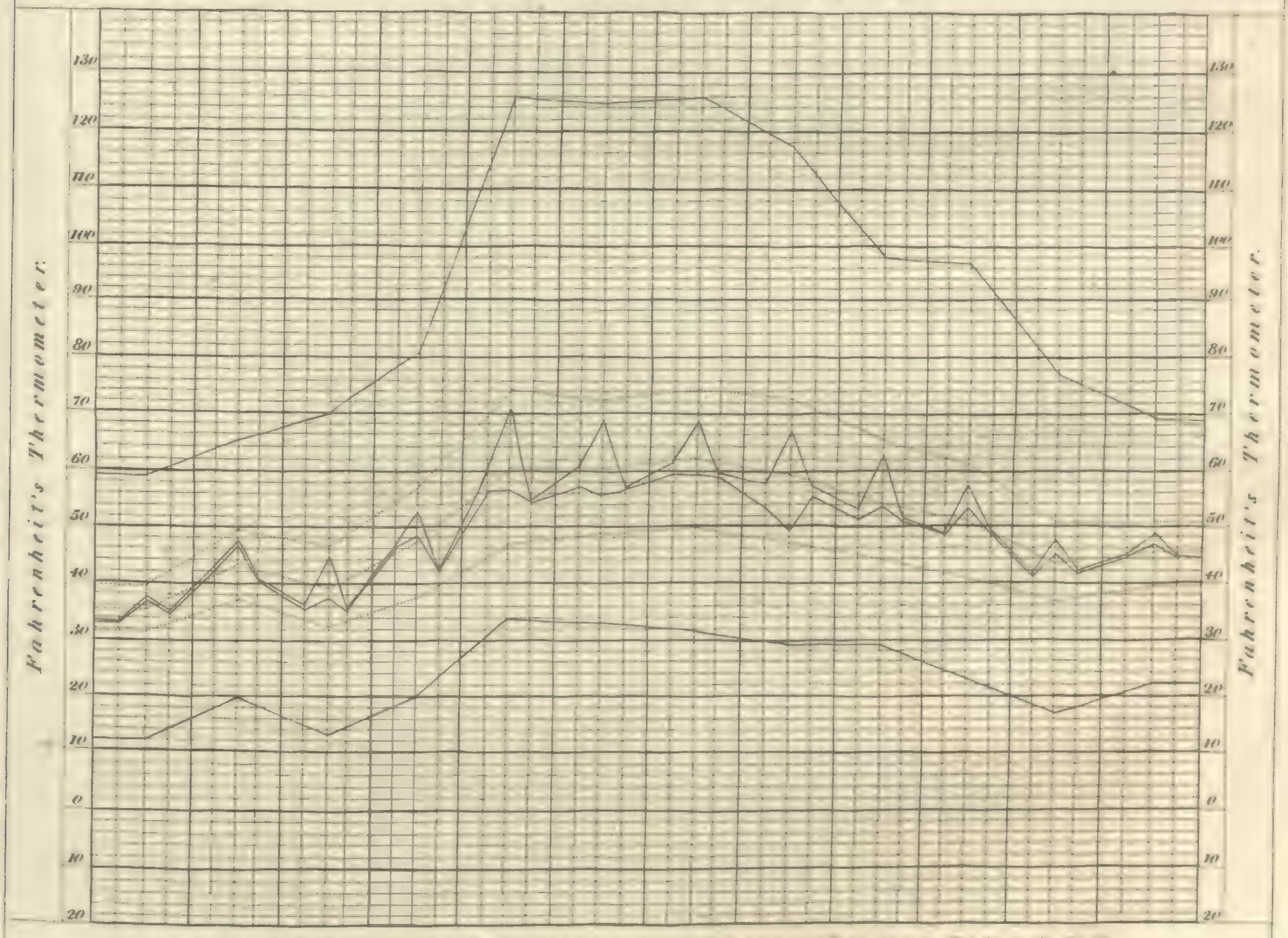
Monthly Mean Pressure, Temperature, and Dew Point, &c. of 1833; deduced from the Observations recorded in the preceding Journal.

1833.	Pressure.								Temperature.												
					Mean at			Mean of the three Observations.	In the Shade.			Mean at			Mean of the three Observs	In Sun's Rays.		Terrestrial Radiation		Med. of Sun and Radn.
Months.	Max.	Min.	Med.	Range of Barom.	Morn.	Noon.	Night.		Max.	Min.	Med.	Morn.	Noon.	Night		Max.	Min.	Max.	Min.	
Jan. .	30.783	29.443	30.242	1.340	30.255	30.242	30.231	30.242	47	22	35.3	33.5	37.7	35.1	35.4	59	38	38	12	34.1
Feb. .	30.070	29.096	29.567	0.974	29.553	29.567	29.576	29.565	56	29	43.7	42.6	47.9	40.1	43.5	65	45	43	20	44.1
March	30.351	29.354	29.874	0.997	29.881	29.862	29.875	29.872	58	23	39.2	36.8	44.7	35.4	39.0	70	42	41	13	41.0
April	30.285	28.910	29.767	1.375	29.787	29.772	29.738	29.765	67	29	47.2	46.8	53.4	41.9	47.3	81	58	47	20	48.9
May .	30.500	29.541	30.118	0.959	30.131	30.116	30.111	30.119	86	39	68.5	59.8	70.5	54.7	61.6	126	79	50	34	73.8
June.	30.403	29.414	29.847	0.989	29.848	29.834	29.858	29.846	87	38	60.6	61.2	68.9	56.8	62.3	125	82	53	33	72.5
July .	30.458	29.612	30.033	0.846	30.037	30.018	30.039	30.031	86	40	62.2	61.7	69.1	59.2	63.3	126	69	54	32	74.9
Aug.	30.394	28.985	29.980	1.409	29.996	29.976	29.965	29.979	80	36	59.4	57.9	66.7	57.1	60.5	117	66	58	29	68.6
Sept.	30.377	29.409	29.914	0.968	29.919	29.907	29.918	29.914	72	34	54.5	53.0	62.3	51.0	54.5	98	63	51	29	60.9
Oct. .	30.303	29.188	29.820	1.115	29.821	29.820	29.820	29.820	68	29	51.1	48.4	57.6	48.9	51.6	97	62	51	23	59.3
Nov. .	30.309	29.175	29.953	1.134	29.971	29.936	29.952	29.953	62	24	43.6	41.9	47.6	42.0	43.8	77	54	46	17	46.4
Dec. .	30.191	29.241	29.748	0.950	29.740	29.721	29.762	29.741	56	28	45.6	44.8	48.3	44.6	45.9	69	48	50	22	46.5
Aver.	30.368	29.280	29.905	1.088	29.911	29.897	29.903	29.904	68.75	30.9	50.9	49.0	56.2	47.2	50.7	92.5	58.5	48.5	23.6	55.9

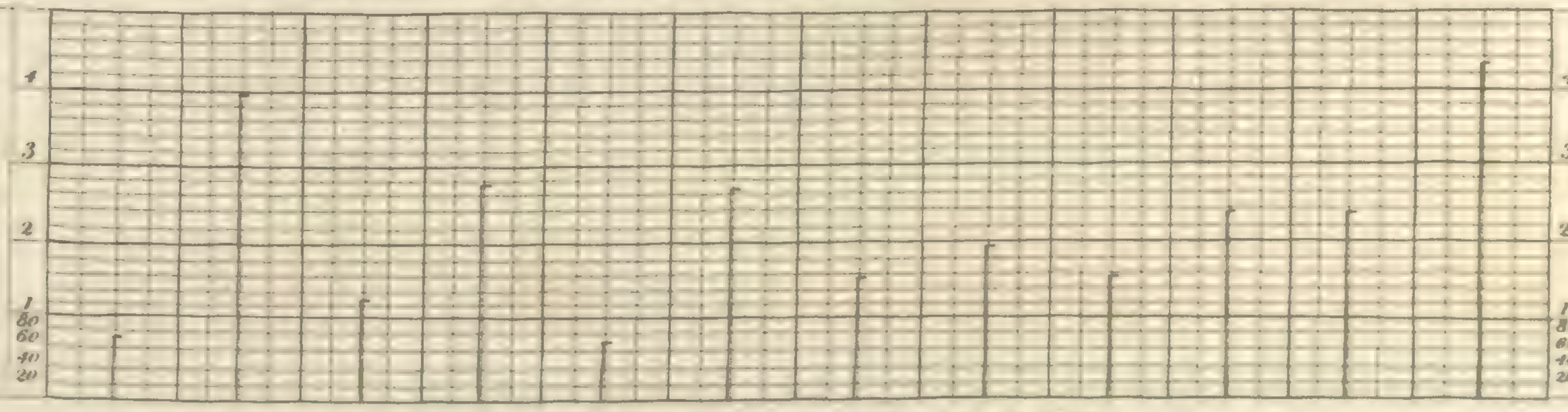
1833.	Hygrometer indicating Dew Point.								Scale of the Winds.									Rain.
	Mean Dew Point at			Mean Dew Point.	Mean Force of Vapour.	Mean degree of Dryness.	Mean degree of Moisture.	Least degree of Moisture.										
Months.	Morn.	Noon.	Night.						N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.	Days.	In. Pts.
Jan. .	33.3	37.0	35.0	35.1	0.241	0.34	992	843	1	11	8	3	3	4	1	0	31	0.52
Feb. .	42.4	46.1	40.0	42.9	0.314	0.66	975	756	3	2	2	0	5	9	7	0	28	3.98
March	35.8	37.2	35.0	36.0	0.248	2.99	911	559	6	10	3	4	2	1	3	2	31	1.22
April	46.4	48.1	41.8	45.4	0.344	1.94	934	589	4	1	1	2	6	6	5	5	30	2.71
May .	56.0	56.2	54.1	55.5	0.484	6.16	823	428	1	5	7	1	8	5	4	0	31	0.68
June.	57.4	55.9	56.3	56.5	0.501	5.75	835	377	0	0	0	2	4	6	17	1	30	2.63
July .	59.1	59.3	58.9	59.1	0.545	4.25	876	442	3	4	3	1	2	7	9	2	31	1.56
Aug.	53.4	48.9	55.0	52.5	0.436	8.08	766	415	4	7	0	0	1	4	12	3	31	1.93
Sept.	51.9	53.9	50.3	52.0	0.428	3.38	886	555	2	5	3	0	10	2	7	1	30	1.55
Oct.	48.3	53.1	48.8	51.1	0.400	1.52	941	657	1	5	5	1	7	6	3	3	31	2.35
Nov.	40.5	44.8	41.8	42.3	0.308	1.50	944	660	0	0	1	1	8	13	6	1	30	2.38
Dec. .	44.1	46.1	44.3	44.8	0.338	1.03	962	745	0	0	0	1	1	15	12	2	31	4.29
Aver.	47.3	48.8	46.7	47.7	0.382	3.14	903	652	25	50	33	16	57	78	86	20	365	25.80



Mean Height of the Barometer, in 1833.



Mean and Extremes of Temperature and Mean of the Dew-Point, in 1833.



Monthly depth of Rain, in 1833.

LXI. *Remarks on the growth of a peculiar Fir resembling the Pinaster.* *By Sir* C. Lemon, *Bart. M. P., F. H. S.*

Read November 5, 1833.

About four years ago I exhibited to Professor Lindley, Mr. Lambert and Mr. Don some specimens of a fir which I found growing in the plantations of this place, and which in foliage very much resembled the Pinaster, but differed from it as widely in other very important characters. They concurred in opinion that it was a variety of Pinaster, perhaps accidental, but at most a permanent variety, induced by circumstances of climate and soil. With that opinion I was of course bound to rest satisfied; but having since that time observed some hundreds of specimens, and found in each an unbroken constancy of character very inconsistent with the hypothesis of accident or modification, I am induced to offer a few remarks in the hope of drawing the attention of those who plant Pinasters in other counties to this, which appears to be a botanical problem of some interest. I can conceive that by means of the constant communication between Falmouth and distant parts of the world seeds may have been brought from abroad and raised indiscriminately with the Pinaster by some nurseryman, who may have supplied the planters of this county; but it is still difficult to imagine that any species so accessible should have escaped the observation of botanists and yet remain undescribed.

The leading characters of this Fir consist in the form and position of the cone, and the effects on the growth of the tree resulting from that position; and it is with regard to these points principally that I would contrast it with the common Pinaster, to which it

appears to be allied. With respect to the form of the cone, then; in the common Pinaster it is oblong, tapering towards the base, and having large projecting echinate scales with deep fissures between them. In the kind in question it is smaller, more ovate, tapering but little towards the base, and having moderate sized unarmed scales with shallow furrows between them.

The position of the cone is a still more striking distinction. In the common Pinaster the cones, of which there are generally three or four, are situated behind the shoots of the whorl, and in the mature state point backwards. In this obscure species on the contrary the cone is single, and it as universally occupies the place of the leading shoot, the side shoots being behind it. The necessary consequence of this position is, that the tree *can* have no regular leader; but each year one of the side shoots strengthens; and continues the growth for the ensuing season. The year following the same process is repeated in another direction; a new axis of growth is formed, and the stem of the tree acquires a zig-zag appearance, which is never entirely lost, though of course much obliterated by age.

These distinctive characters may indicate either—1st. A distinct species—2nd. A hybrid, between adjacent species—3rd. An accidental, perhaps permanent variety. I know of no other answer that can be given to the question of its doubtful origin, and I confess that I am staggered by the difficulties which belong to each of the three cases. In the first place I have the opinion of the above named eminent botanists that no such species has been observed in any part of the world—2dly. Supposing it to be a mule of the Pinaster with some other Fir; amongst many specimens gradations must necessarily occur, and in variuos instances the hybrid would approach more or less near to one or other of its parents. In some cases the character of the parent Pinaster would very decidedly predominate, while the adventitious character would signalize some

remote part of the plant as an ingrafted peculiarity; and in others where the derivative character is more completely established, the pure parent growth would still occasionally exhibit itself. But in the trees which I find growing in these plantations, there is no such mixture. They are altogether Pinaster, or altogether of the doubtful kind; and amongst many scores of specimens which I have examined, I have never yet found one which partook of both forms of growth: in no one instance have I seen a cone in the place of a leading shoot in one part of a tree and in its ordinary situation in another. This I conceive to be conclusive with respect to the notion of the tree being hybrid, and the argument is almost as applicable to the only remaining solution, namely, that the tree may be a variety induced by peculiarities of climate and soil, and exhibiting the ordinary effects of such change.

Here also it is difficult to conceive that in some part of some trees, where the conversion might be incomplete, indications of an effort to adhere to the original type should never appear; but these indications are, as far as my observation goes, totally wanting, and the conversion, if such it be, is either complete or not commenced. There are also other difficulties in the way of this last supposition.

Changes of organs, I apprehend, take place only by multiplication of parts, by abortion, or by conversion of the rudiments of the infant shoot according to a fixed rule of progressive development; whether from the centre to the circumference or vice versâ, I will not now enquire, for in neither direction can we find any explanation of a counterchange of parts by which the cones and shoots should be reciprocally converted.

Where multiplication takes place the side shoots become very numerous; and this is so common as almost to form a character of the tree. Where abortion takes place the side shoots are diminished in number, and sometimes totally wanting, and the cone is left

singly terminating the branch. In the former case the cone itself is sometimes absent; still no regular leader supplies its place, but a broad disk marks the situation on which the cone should have stood.

The general appearance of the tree is as a short bushy Pinaster, the stem of which is zig-zag, and the branches close and twiggy. Retarded, as it necessarily is, by the conditions of its growth, of course it does not increase in height *pari passu* with its neighbours; but there is nothing dwarfish or diseased in its appearance, nor does it exhibit any peculiarities of constitution to which other Firs are not subject. Occasionally, as do the Pinaster and Scotch Firs, it kills itself by an exuberant bearing of cones; and it then assumes a very extraordinary aspect, reminding me of the groups of little wooden birds, perched on the ends of sticks, at which the people of Holland and Belgium shoot for prizes with bows and arrows. The foliage is gone and the tree is reduced to a collection of dry sticks, each terminated by a cone.

The largest tree which I have seen measures 44 inches in girth at 4 feet from the ground, and I believe it to have been planted about 35 years ago; but there are many of smaller growth assuming all the characters that belong to the variety or species at 8 or 9 years of age.

I have only to add that I have sowed seeds from cones gathered from these trees, and that the young plants, now 3 years old, show symptoms of the same peculiarities.

Note by the Secretary.

From Sir Charles Lemon's observations, as well as from the specimens he has obligingly sent us, it appears that the tree he mentions is a species of Pinus not hitherto described, and which may be thus characterized:

P. Lemoniana; foliis geminis, strobilis terminalibus erectis ovoideis obtusis, squamis apice incrassatis angulatis umbilico brevi acuto.

Pinus Lemoniana.

(1. cone of P. Pinaster)

W. B. Booth del.

J. W. Lowry sculp.

LXII. *Upon a new mode of applying Hot-water to heating Stoves, &c. In a Letter to the Secretary. By* Alexander Cruikshanks, *Esq. C. M. H. S.*

Read May 20, 1834.

My dear Sir, London, May 12, 1834.

I send you the sketch I promised you of the hot-water apparatus, and two other sketches with plans for similar apparatus on a larger scale, in which the parts are differently proportioned and arranged. I believe I mentioned to you that I suggested this mode of heating the water to a friend in France, who had built a small green-house in front of his dining-room, where there was no convenient place to erect the brick-work for a common boiler, nor any chimney into which a flue might be turned. It occurred to me that by having a small cylindrical boiler constructed like those originally employed in the high pressure steam-engine, containing the furnace in a smaller cylinder within the first, and surrounded by the water, that no brick-work would be required; and that by burning a mixture of charcoal and cinders, the inconvenience of smoke would be avoided, and sufficient draught obtained by a moderate length of stove-pipe passing through the roof. This plan was adopted, and answered completely. The apparatus is represented in sketch No. 1., the same letters referring to the several parts in the different figures. The spaces occupied by the water are tinted blue.

Fig. 4 is a vertical longitudinal section: A B C D, the outer cylinder or boiler, 3 feet long, and 1 foot in diameter; E the fire-place; F the door, lined with a mixture of fire-clay and pumice-stone; G the ash-pit, furnished with a drawer of sheet-iron. The fire-place and ash-pit are contained in the inner cylinder, which is

half the length of the boiler, and 9 inches in diameter. From the back of the fire-place, an elliptical flue, H, proceeds nearly to the end of the boiler, then returns towards the front, and passes out at I into the chimney K. L is a cylinder for supplying the boiler with water, and allowing for its expansion when heated; M M the water-pipes, (shewn in section at fig. 5) connected with the boiler by screws and flanges at O O. These pipes are elliptical, which shape combines in some measure the strength of the circular with the extended surface of the flat form. The pipes are only 12 feet long; but the circulation is so rapid that the boiler would serve for a much greater length. N is an air-pipe.

This small apparatus has answered so well, and appears to offer so many advantages over a boiler set in brick-work, that I have been led to consider how the plan may be improved upon and applied to heating houses of large dimensions with any sort of fuel. This I think might be accomplished by constructing the apparatus according to one or other of the plans Nos. 2 and 3, where the same general principle is followed as in that already described; but the boiler and furnace are so formed that a smaller quantity of water is contained between them compared with the surface exposed to the heat from the fire, and the arrangement of the parts is better calculated to promote a rapid circulation of the water in the pipes. For this purpose the cylinder L, instead of being placed at the same end of the boiler as the pipes, is removed to the opposite end, and the upper pipe is connected with it; consequently the water enters from the lower pipe at one extremity of the boiler, passes through its whole length over the surfaces of the furnace and flue, becoming gradually heated in its passage, and then rises through the cylinder into the upper pipe; thus flowing in a constant and regular current through the whole apparatus. In fig. 8, the front of the fire-place, where ignited fuel would be inconvenient, is occupied by a large fire-tile, P, on which a supply of fuel may be

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 6.

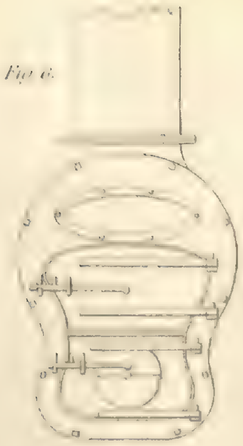


Fig. 7.

Fig. 4.

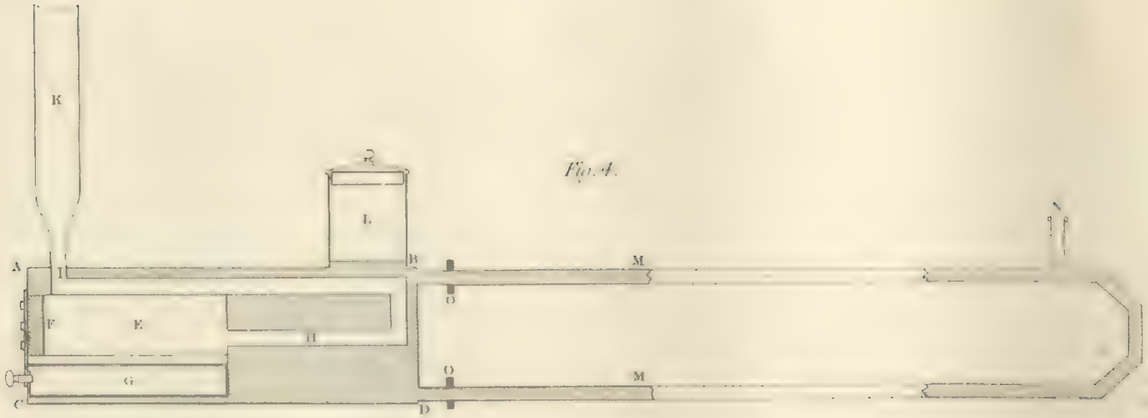


Fig. 5.

Fig. 9.

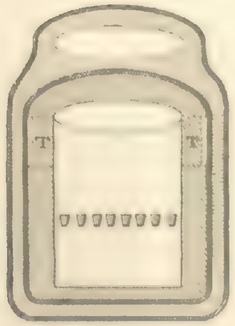


Fig. 8.

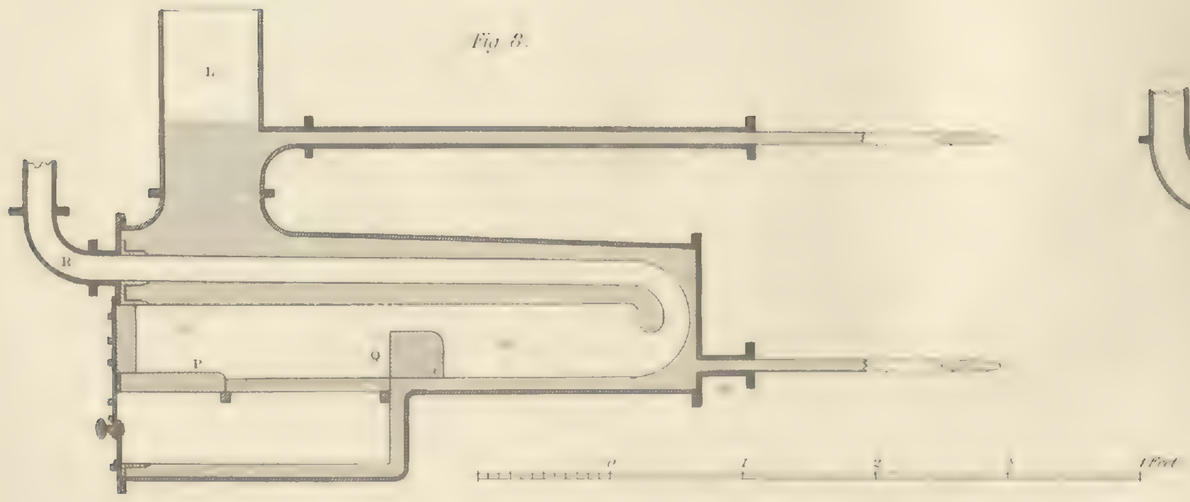
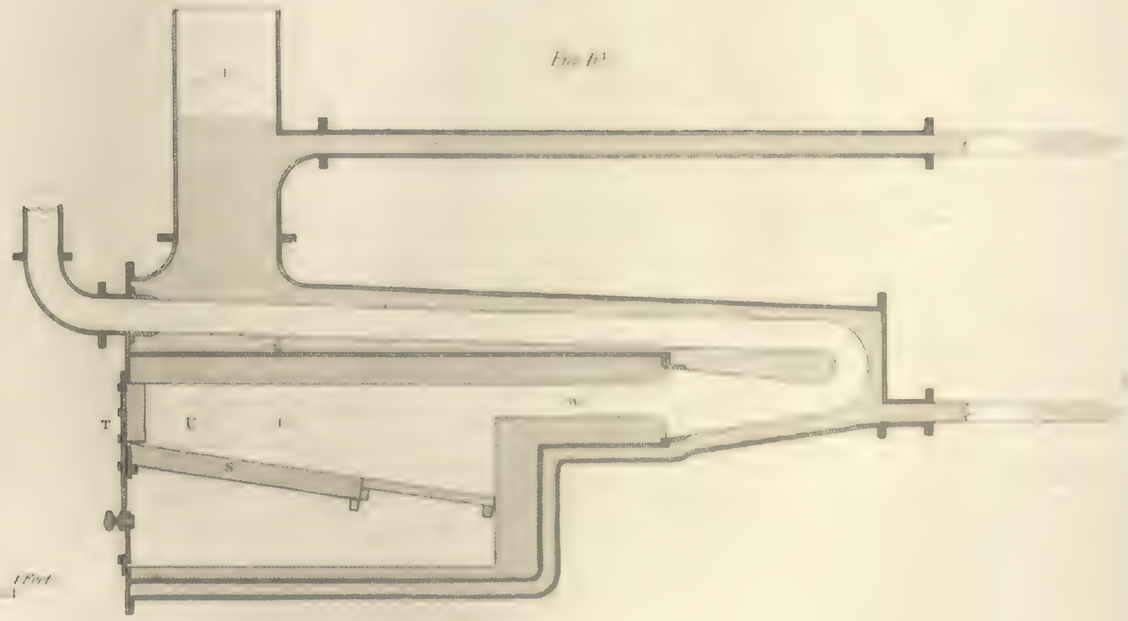


Fig. 10.



Mr. Cruickshanks' Hotwater Apparatus.

heated, previous to its being pushed forward on the grate. Q is a bridge formed of fire-clay in one piece, which may be removed when the flue requires cleaning. The flue, instead of passing through the top of the boiler, is brought out at the front, where it turns upward, and is intended to be carried into a common chimney. Thus the furnace and flue being fixed only to the front, and unconnected with any other part of the boiler, the whole may be removed in a few minutes should any repair be necessary. The furnace in figs. 7 and 8, though well adapted for burning coke, cinders, or dry wood, would perhaps not answer well for coal, as the smoke would be so much chilled by contact with the metallic surface of the fire-place, that the flue would be liable to become foul. This might be prevented by constructing the furnace as in No. 3, figs. 9 and 10, lining it throughout with fire-brick. S is an inclined plane of fire-tiles on which the fuel is to be spread when first put into the furnace. At T T are air-passages, between the fire-bricks and the case of the furnace, leading from the front, and having openings, U U, into the fire-place at the joints of the bricks above the inclined plane. A regulated supply of air being admitted through these openings would mix with the vapours rising from the coal, and in a great measure effect the combustion of the smoke in passing over the fire, and through the heated passage W. The boiler should be placed within the house, either under the plant-stage, or in a pit sunk below the level of the floor; the end only being built into an opening in the wall for the purpose of supplying the fire with fuel from the back shed.

I do not by any means suppose that the particular forms and dimensions of the different parts, as figured in these sketches, are the best that can be adopted; my object has been merely to illustrate the principle, which I am persuaded may be so applied that a much greater proportion of the heat generated by the combustion of the fuel may be communicated to the atmosphere of the house,

and that with less loss of time, than by any of the methods now in use. The flue or flues being surrounded by water, may doubtless be constructed in such a manner that the heated air and vapours passing through them may be so far deprived of their caloric as to enter the chimney at a temperature little above that of the water; and beyond this point the economy of the fuel cannot possibly be carried. To limit the loss of heat by the chimney is of course a desideratum in any mode of warming buildings; but it appears to be overlooked in many of the plans proposed for the purpose, especially in those for employing oil and other fluids at a temperature considerably above the boiling point of water. As the heated air and vapours must necessarily enter the chimney at a higher temperature than that of the fluid in the boiler, the loss of heat will of course be greater in proportion as that temperature is increased. There is another circumstance connected with the plans alluded to that does not appear to be taken into consideration at all; I mean the great capacity of water for heat compared with most other fluids, oil for instance, or mercury. Water, it is well known, in being heated any number of degrees, absorbs twice as much caloric as an equal bulk of oil or mercury, and consequently a given bulk of water at 212°, in cooling down to 60°, that is in losing 152° of sensible heat, would warm the surrounding atmosphere as much as an equal bulk of oil or mercury would do in cooling from 364° to 60°, or in losing 304° of sensible heat as indicated by the thermometer. Such being the case, if oil or mercury, or almost any substance that can be named, could be compared, in point of economy, safety and cleanliness, as a material, with water at or under the boiling point, still it would be inferior to water in point of economy as regards the consumption of fuel.

I omitted to state that the apparatus figured in No. 1 was constructed of copper. It cost 225 francs, about £9 sterling; but as the boiler and chimney formed the chief items, the pipes costing

only 2 francs per foot, the expence for a house, 30 feet in length, would have been under £13.

In the plans Nos. 2 and 3 I have supposed the outer case, or boiler, to be of cast iron, as well as the case of the furnace in No. 3, and all the other parts of copper. The whole might be made of cast iron; but there would be a risk of its cracking in those parts exposed to the fire, an accident to be especially guarded against in heating horticultural buildings. Plate-iron or tin-plate might be employed, either wholly or in part; but cast iron and copper would perhaps be the preferable materials. With respect to the pipes when made of sheet copper or zinc, or tin-plate, they are better calculated to disperse the heat than those of cast iron commonly used, which are perhaps, except in point of strength, the worst that can be employed: they expose a smaller surface, in proportion to the water they contain, than pipes of any other shape; and from the thickness of metal, never less than $\frac{3}{8}$ of an inch, and frequently more, they oppose a direct obstacle to the ready transmission of the heat from the water to the surrounding atmosphere. Thin sheet copper is certainly far superior, and perhaps in the end the most economical. Zinc, though otherwise an excellent material, is not well suited for *elliptical* pipes; it becomes so soft at the temperature of boiling water that they soon, the lower ones especially, change their shape and become nearly round. If cast iron be preferred, there is no reason why the cylindrical form should be adhered to; and probably if elliptical pipes of different sizes, *cast as thin as possible*, were to be supplied from the foundries where those now in use are cast, they would soon supersede the use of the latter.

No reservoir has hitherto been attached to the small apparatus I have described; but on a large scale it would of course be necessary, the quantity of water being small, and there being no mass of brick-work to act as a reservoir of heat: this purpose however is evidently much better answered by a cistern of water within the house, than

by a boiler and brick-work, from which much heat is dissipated, in the back shed; but to prevent loss of time in applying the heat in severe weather, it should be so connected with pipes that the water in them may be sufficiently heated to warm the house before it is allowed to pass into the reservoir.

I am, my dear Sir,

very truly yours,

A. CRUIKSHANKS.

Clianth puniceus.

S Watts, sculp.

LXIII. *Note upon a handsome and hardy Plant, called* Clianthus puniceus. *By* John Lindley, *Ph. D. F. R. S. &c. Assistant Secretary.*

Read December 2, 1834.

That there exists in New Holland, a race of plants of extraordinary beauty, having very large papilionaceous flowers, of a deep and rich crimson, has been known for much more than a century, in consequence of a figure of one of them having been published in the third volume of the Voyage of Dampier, during whose visit to New Holland it had been discovered, on one of the islands of the Archipelago, bearing the name of that early navigator. Specimens, at that time collected, and which I examined not more than six months ago, exist in excellent condition in the Sherardian Herbarium, at Oxford. Subsequently, during Cook's first voyage, a plant extremely like the first, but quite destitute of the hairiness of that species, was found by Sir Joseph Banks and Dr. Solander in 1769, on some part of the eastern coast of the northern island of New Zealand, or in Cook's Strait,* and was named by Dr. Solander, *Clianthus puniceus*. It was not, however, noticed in any systematic work until lately, when Mr. George Don, first published an account of the genus in the second volume of his edition of Miller's Gardener's Dictionary; changing, however, Solander's name *Clianthus puniceus*, for that of *Donia punicea*.

* Mr. Cunningham considers that as this plant does not occur among a collection lately formed by his brother in New Zealand, and was not seen by himself in his visit to the Northern island in 1826, it is, probably, a rare plant, and that its particular localities are to the southward of the Bay of Islands: probably the shores of the River Thames, or at Mercury-bay, where Cook afforded the naturalists who accompanied that voyage, opportunities of landing in 1769, and near which, viz. at Tauranga, in the Bay of Plenty, the missionaries at this time, have stations, whence the seeds were, doubtless, transmitted.

It was, then, with no little pleasure that I recognized this most beautiful but little known plant, in a specimen which was brought me by William Leveson Gower, Esq. from his garden at Titsey Place, near Godstone, in May of the present year. It had been raised from seeds gathered by the Missionaries in New Zealand, where it is said to be called "Kowaingutukaka," or Parrot's Bill, and to grow to the size of a large tree; in England, however, it has not reached beyond 4 feet in height.

When planted in a peat border in the open air, where it succeeds the best, it forms a half-herbaceous evergreen shrub, not very unlike an evergreen Vetch, or more correctly speaking, a scarlet Colutea, (*Sutherlandia frutescens*). Its leaves are smooth, pinnated, and of rather a succulent texture, consisting of about eight pairs with an odd one. The stem is entirely free from furrows or angles, and is about as thick as a goose's quill. The flowers grow in oval clusters, hanging down from the axils of the leaves upon the lateral branches; each flower is rather more than three inches from the tip of the standard to the tip of the keel; the petals are of a light bright rich crimson, without any mottling or marking; the standard, which is of an ovate-lanceolate figure, and much tapered to the point, is reflexed so as almost to lie back upon the calyx; the wings are very much shorter than the keel, the point of which is so much prolonged as to look like the beak of some bird, although it must be confessed not much like that of a parrot. The flowers are succeeded by brownish black pods, two inches and a half long, seated on a slender stipe, and convex on the upper instead of the lower edge: so that unless attention is paid to their manner of growth, it would seem as if the seeds grew to the lower instead of the upper edge. They are covered all over inside with a delicate cottony down, in which lie the small kidney-shaped seeds, of a dull yellowish-ochre colour, mottled with small dark brown blotches and speckles.

A good idea of the appearance of the plant will be obtained from the accompanying figure, from the pencil of Miss Drake.

From the trials that have been made of the proper mode of managing it, both by Mr. Gower and the Rev. John Coleman, by whom it was given to the former gentleman, it would appear that it succeeds best when treated as a hardy plant, and turned out into a peat border; for in such a situation it has now been two years in Mr. Gower's garden, and the plants continue to look very healthy, with a profusion of blossoms forming for next year. Kept in a green-house it was sickly and did not flower in the hands of Mr. Gower's gardener; but Mr. Coleman succeeded in blossoming it in a large pot in the green-house, and in inducing it to ripen its pods, one of which is that here figured.

Considering that the climate of New Zealand is in some places so much like that of England, that some species, such as *Edwardsia microphylla*, will bear the rigour of our winters, it is not improbable that this may also prove a hardy plant. If so its extraordinary beauty will render it one of the most valuable species that has been introduced of late years; and even if it should be no hardier than *Sutherlandia frutescens*, it will still form one of the most important and welcome of all the modern additions to our flower-gardens.

I am happy to complete this communication by the addition of some notes upon the other species of this remarkable genus, for which I am indebted to Mr. Allan Cunningham, the distinguished traveller in Australia.

1. Clianthus puniceus.

Clianthus puniceus. *Solandr. Mss. in Mus. Banks.*
Donia punicea. *Don's gen. syst. of gard.* 2. *p.* 468.

This differs from the two Australian species next enumerated, in being evidently a suffruticose plant of diffuse, but not procumbent habit, having alternate blunt oblong smooth leaflets; flowers in

pendulous racemes; a calyx deeply toothed; and legumes entirely smooth on the outside.

2. Clianthus Oxleyi. *A. C. MSS.*

Clianthus herbaceus prostratus valdè villosus, foliolis oppositis ovato-lanceolatis obovatisve, pedunculis elongatis erectis sulcatis, floribus (4—6) umbellatis, calyce quinquefido, legumine sericeo.

Donia speciosa. *Don's Gen. Syst. gard.* 2 *p.* 468.

Hab. in nova Hollandia interiore: in oris sterilibus lacus Regent, ad fluvium Lachlan. 1817. *A. C.*

A strong growing procumbent herbaceous plant, apparently of perennial duration, producing rich crimson flowers in umbels upon long upright peduncles. It is named to commemorate the late John Oxley, Esq. Surveyor General, in whose first expedition to the interior it was discovered.

It may be remarked to show its comparative rare existence, that since the period of its being met with, in July 1817, on the eastern shore of the Regent's Lake, where it was found abundantly in flower, it has not been observed by subsequent botanical travellers, in any other part of the internal country they have visited.

3. Clianthus Dampieri. *A. C. MSS.*

Clianthus herbaceus procumbens villosissimus, foliolis obovatis cuneatisve retusis (cum mucronulo), floribus pedunculatis racemosis, calycibus quinquefidis, legumine sericeo.

Donia formosa. *Don's Gen. Syst. Gard.* 2 *p.* 468.

Colutea novæ Hollandiæ, floribus amplis coccineis, umbellatim dispositis, macula purpurea notatis. *Woodward in Dampier's voyage*, (ed. 1729), *Vol.* 3, *p.* 111, *tab.* 4, *f.* 2.

Hab. in novæ Hollandiæ orâ septentrionali-occidentali : in insulis aridis sabulosis Archipelagi Dampier. 1699. *Gulielm. Dampier.* 1818. *Allan C.*

In the work last quoted, it is said of this—"the flowers are very like to the *Colutea Barbæ Jovis folio, flore coccineo*

Breynii." (Sutherlandia frutescens *R. Br. Dec.*) of the same scarlet colour, with a large deep purple spot in the vexillum, but much bigger, coming all from the same point after the manner of an umbel. "The rudiment" (adds the writer) "of the pod is very woolly, and terminates in a filament near 2 inches long."

As there cannot well be any doubt of the identity of the plant Dampier found in 1699, on one of the islands of the Archipelago, now bearing his name, (of which, a small specimen, without leaves, is still preserved in the Sherardian Herbarium at Oxford), and the above species, observed sparingly on the same arid group by myself, in the voyage of Captain P. P. King, R. N. in 1818, I have dedicated it to that very celebrated navigator, its discoverer. In May, 1818, it was found in flower, and only with fruit in a very young state.

LXIV. *A further account of experiments upon the cultivation of the* Potatoe, *made in the Garden of the Horticultural Society, in the year* 1834. *By* John Lindley, *Ph. D. F. R. S. Assistant Secretary.*

Read January 20, 1834.

Although the Experiments already laid before the Society* seem abundantly sufficient to prove the advantage of planting potatoes, wider apart and deeper than is the usual practice, and to confirm Mr. Knight's statements of the results that he has obtained; yet it appeared desirable to repeat the comparison of whole tubers and sets, and to illustrate the advantages and disadvantages of close or distant cropping, by trials with the varieties of potatoes commonly in cultivation among those who supply the markets of London.

With this view, a quantity of early Champion Potatoes was purchased in the beginning of 1834, and a piece of ground on which no potatoes had been previously grown, was selected for the trial. No manure was employed, nor was the soil by any means in a fertile state for garden ground.

The ground was divided into four equal parts. In one of these the rows of potatoes were as much as two feet and a half apart; in another two feet; in a third one foot and a half, and in the fourth only six inches. Half of each division was planted with whole tubers, and half with sets, cut to a single eye. The whole were committed to the ground on the 27th of February, the tubers or sets being, in every case, six inches apart in the rows, and nine inches deep.

On the 24th of April the points of the potatoes had reached the

* See pages 153 and 445 of this volume.

surface of the soil, and the next day about three inches of soil were drawn over them, for the purpose of protecting them from ground frosts, which in low and flat places like the Society's Garden, are still prevalent at that time of the year. By the 2nd. of May the whole surface of the ground in the division where the rows were only six inches apart, was a mass of entangled stems. By the 20th of the month, the stems in the division where the rows were one foot and a half apart, had nearly covered the ground; and, in a week after, those in the two feet division were in the same state; but the ground was not covered during the whole season, where the rows were two-and-a-half feet apart.

The shoots from the whole tubers were, in all cases, much stronger than those from the single eyes, but they began to be prostrated in the six inch division on the 29th of May, and the whole of them, in all the divisions, were in the same state by the 27th of June; while the stems from the single eyes continued erect till they began to turn yellow and wither, in the end of August. This will, probably, account for the superiority of sets over whole tubers; could the crop be protected from winds, and the stems of the tubers be prevented from breaking, I have no doubt that tubers would yield the largest crop; but their very vigour makes them brittle, and once broken, they are no longer able to perform their functions perfectly.

The greatest length to which the stems attained was two feet; the principal part of them attained that length but many did not exceed one foot and a half; and those in the division where the rows were at that distance were the most uniform in their appearance. The important inferences to be drawn from this were afterwards shewn by the result.

On the 26th of September the whole crop was taken up, freed from mould, and weighed. Where the rows were only six inches apart a number of the new potatoes were partially decayed, and a

very large proportion was too small to be fit for use. The most uniform size was obtained from the division where the rows were two feet apart. The result of the experiment was as follows :—

Distance between Rows.	Sets.	Weight Planted.	Weight taken up.	Rate of Produce.	Weight required per acre for Seed.	Weight produced per acre.	Net Return per Acre, after deducting the Weight originally Planted.
ft. in.		lbs. oz	lbs. oz.		lbs.	lbs.	lbs. tns. cwt. lbs.
2 6	Whole Tubers	130 6	957 8	1: 7.34	6,497	47,721	41,224 or 18 8 4
	Single Eyes	29 8	748 6	1:25.35	1,470	37,280	35,810 .. 15 19 82
2 0	Whole Tubers	149 0	887 0	1: 5.95	7,426	44,208	36,782 .. 16 8 46
	Single Eyes	36 0	1116 0	1:30.	1,794	55,621	53,827 .. 24 0 87
1 6	Whole Tubers	238 4	1190 8	1: 4.98	11,674	59,234	47,560 .. 21 4 72
	Single Eyes	41 4	1068 0	1:25.89	2,055	53,229	51,174 .. 22 16 102
0 6	Whole Tubers	643 6	1402 8	1: 2.18	32,065	69,900	37,835 .. 16 17 91
	Single Eyes	100 8	860 0	1: 8.55	5,008	42,862	37,854 .. 16 17 110

I think this result is the most interesting that we have yet obtained, for it not only reduces to something like a demonstration, the superiority of sets over whole tubers, but it shews that the crop will be greater where the distance between the rows is most in accordance with the average height of the potatoe stems; and that if we take the minimum height, which in this variety is one foot and a half, although the crop may be the most promising while growing, it will, in reality, be smaller than when the branches are less dense. Thus the most uniform crop of stems in this experiment was in the division where the rows were one foot and a half apart; but the crop in that division was less by 1 ton, 3 cwt. 97 lbs. than where the rows were two feet apart, that is, equal to the average height of the stems.

For the sake of contrasting the produce thus obtained with the crop in the fields of those who cultivate potatoes for the market, I caused the weight in some neighbouring fields to be ascertained by the same men who weighed the potatoes which were the subject of the foregoing experiment.

A field of Yorkshire Shaw Potatoes, belonging to Mrs. Medley, of Acton, was found to yield at the rate of 14 tons, 1 cwt. 26 lbs. per acre; about 27 bushels of sets per acre were planted, which, allowing 68 lbs.* as the weight of a bushel, will give a clear return of only 13 tons, 4 cwt. 94 lbs. per acre. The crop of Long Kidney Potatoes, in a field of Mr. Jessop, a tenant of the Duke of Devonshire, at Sutton Court, yielded a produce of 12 tons, 4 cwt. 84 lbs., or only 11 tons, 8 cwt. 40 lbs. per acre, net.

In these cases the rows were from 22 to 24 inches apart; and the sets at uncertain distances in the rows, varying from six to nine inches; but in the last case they were not planted more than five inches deep, including the subsequent earthing up by the plough, and in the first not more than eight inches. Moreover, Mrs. Medley's crop was not planted till the latter end of May, and Mr. Jessop's some time in the beginning of April.

It is not difficult to account for the small amount of produce obtained in both these cases, as compared with what was yielded in the Society's Garden; and they are the more interesting, because, so far as distance between the rows went, that point was attended to. The Society's potatoes were planted on the 27th of February, at the depth of nine inches, and were, subsequently, earthed up three inches more, so that on the whole they were buried a foot below the surface of the soil. Mr. Jessop's potatoes were only five inches deep, and were not planted till the beginning of April; consequently he lost seven inches in depth, a most important fact, and about five weeks of the growing season. Mrs. Medley, on the other hand, did not lose more than four inches of soil, her potatoes having been buried eight inches deep; but she lost nearly three months of the growing season. It is, however, worthy of remark,

* The London Salesmen allow 70 lbs. as the weight of a bushel of potatoes; but I found it upon several trials, made soon after the crop was taken up, to be only 68 lbs. Mr. Knight estimates it at 80 lbs. (*Hort. Trans. Vol. I, Second Series, p.* 98).

that notwithstanding this great disadvantage, her crop exceeded that of Mr. Jessop's by 1 ton 16 cwt. 54 lbs. net; from which it may be concluded that the greater depth at which hers were buried, more than compensated for the loss of time in planting.

Report on the Special Exhibitions of the Horticultural Society of London. By G. Bentham, *Esq. F. L. S. Secretary.*

From an early period after the establishment of this Society, it had been one of the objects of its Founders that the Fellows should, besides their ordinary meetings for the exhibitions of Horticultural produce, have the opportunity, once at least in each year, of exhibiting to a larger number of their friends, the results of the efforts of practical Horticulturists. With this view the Anniversary Dinner of the Society was fixed at a time of year best calculated to show the finest fruits at the dessert. These dinners, however, were abandoned as the numbers of the Society increased, and fêtes or public breakfasts at the Society's Garden were substituted, on which occasion Medals were awarded for the best fruits exhibited.

These fêtes were continued for three successive years, and, after the interruption of one year, (occasioned by the changes in the management of the Society), were again tried for the fourth time in 1831. But, although at first they seemed to answer the purposes intended, yet it soon became evident that the scale upon which they were conducted was attended with many objections and much risk to the Society, whilst they tended less and less to advance the interests of the science, or to promote harmony and good feeling amongst the Fellows. They were, consequently, abandoned, and in the following year, 1832, it was resolved that, in the course of the Spring and Summer, three Special Exhibitions should be held at the Meeting Room, in Regent Street.

These exhibitions were, accordingly, announced for the 3rd of April for *Camellias*; for the 5th of June for *Azaleas and Rho-*

dodendrons; and for the 3rd of July for *Roses;* and on each occasion the Council placed at the disposal of the Judges, one large Silver Medal, and two or more Banksian Medals, to be awarded to the best Exhibitors, should the Judges consider that number of Medals to have been merited. Fellows and their friends were admitted to these Exhibitions in the same manner as to the ordinary Meetings.

At the first, or Camellia Exhibition, the sides of the room were covered with large boughs or plants of these beautiful shrubs, full of bloom, while a number of smaller specimens of the choice sorts, filled the tables on the floor, and the numerous attendance of Fellows and Visitors, chiefly Ladies, proved the interest which shows of Flowers were likely to create. Collections were received from seven different growers, and the following Gentlemen, viz:—THOMAS CAREY PALMER, ESQ. of Bromley; MR. J. HENDERSON, of Pine Apple Place; and MR. D. MUNRO, Gardener to the Society; accepted the office of Judges. They agreed upon awarding

THE LARGE SILVER MEDAL

To *Messrs. Chandler* and *Son*, of Vauxhall;

THE BANKSIAN MEDAL

To *Messrs. Loddiges*, of Hackney.
To *Mr. George Smith*, of Islington.

The second Exhibition, on the 5th June, had been announced for Azaleas and Rhododendrons, but, owing to the inclemency of the season, which had prevented the former tribe from flowering well, the Show was almost exclusively confined to Rhododendrons, of which collections were received from eleven different persons.

The Judges appointed were the HON. and REV. W. HERBERT, MR. JAMES VEITCH, and MR. D. MUNRO, who agreed upon awarding

THE LARGE SILVER MEDAL

To *Mr. M. Waterer, F. H. S.* of Knap Hill, near Bagshot.

THE BANKSIAN MEDAL

To *Mr. John Lee, F. H. S.* of Hammersmith;
The Rev. Thomas Garnier, F. H. S. of Bishopstoke, near Winchester.
Mr. Thompson, of Mile End.
William Wells, Esq. F. H. S. of Redleaf, near Tunbridge.

The third, and last Exhibition for Roses, took place on the 3rd. of July, and afforded a splendid display of that beautiful tribe, from thirteen contributors; but the hot and crowded state of the room prevented their merits from being duly appreciated by the Visitors assembled. The Judges, T. C. PALMER, ESQ. MR. C. BROWN, and MR. D. MUNRO, awarded

THE LARGE SILVER MEDAL.

To *Mr. John Lee, F. H. S.* of Hammersmith;

THE BANKSIAN MEDAL.

To the *Right Honourable Lord Grenville, F. H. S.*
Mr. James Young, F. H. S. of Epsom.
Mr. Smith, Gardener to the Earl of Liverpool.

It was evident that these three Exhibitions had given considerable satisfaction, both to the Exhibitors and to the Fellows and Visitors who attended; but it was also found that the room was far too crowded, and too small to admit of the flowers and fruit being seen to the greatest advantage; and that but a very small number of Fellows were enabled to bring their friends to see them. It occurred, therefore, that something might be held of the same kind at the Society's Garden, on a larger scale, to which Visitors should be admitted by Tickets, the sale of which, at a moderate rate, might be made to defray the expences. With this view, the

following plan was drawn up and submitted to the Council at their Meeting of the 23rd February, 1833.

"Three Special Exhibitions to take place at the Garden of the Society on three different Saturdays, one in May, one in June, and one in July.

"One or more large Silver Medals, and four or more Banksian Medals, to be awarded to the best exhibitions on each occasion.

"The subjects for exhibition to be arranged under a tent to be erected for the purpose. The Judges to make their award previous to the admission of the Visitors, to whom the gates of the Garden would, on those days, be open from One o'Clock till sunset.

"All Fellows of the Society to be admitted on signing their names, without paying.

"In order to defray the expences of the tent, &c. tickets to be issued for the admission of Visitors; each ticket to be good for *either* of the three days, at the option of the Visitor, and to be distributed to Fellows only for the use of their friends.

"All Fellows who should, on or before Tuesday, the 2nd of April, subscribe half a guinea, to receive three tickets; if they should subscribe one guinea, seven tickets; and if two guineas, fifteen tickets. The produce of these subscriptions alone to be relied on to defray the expences.

"If that produce should be more than sufficient for the payment of the tent, seats, and other necessary expences, the surplus to be applied to the hire of bands of music.

"After the 2nd of April, tickets to be sold to Fellows at 5*s*. each. The produce of these tickets to be reserved for extraordinary contingencies, and the surplus, if any, to go to the general funds of the Society."

The above proposal was adopted, and immediate steps were taken to carry it into effect. Circulars were sent round to the Fellows of the Society, from whom it met with general approbation and support, and before the 2nd of April a sufficient sum of money was received to justify the purchase of a handsome tent consisting of an iron frame work, supported on cast-iron pillars, and measuring 100 feet in length, and 50 feet in its greatest breadth. Under this tent a central circular table and lateral ones under each wing afterwards connected with the central one, were erected for the purpose of arranging the subjects of exhibition, and the sale of tickets increasing rapidly, bands of military music, seats,

and whatever else it was considered might contribute to enliven the scene, or to the accommodation of the Visitors, were provided.

The first Exhibition was held on Saturday the 25th of May, the day was fine, but hot and sultry. The subjects sent for Exhibition partly from the dryness of the season, partly from the novelty of the thing, which prevented many growers from sending their plants until they should see how the show went off, fell rather short of the expectations that had been entertained, it became necessary to fill the tables with a number of cut flowers from the Society's Garden, which were soon faded by the heat of the sun, and, upon the whole, the merit of the Exhibition, as well as the general effect, was far below what has been seen upon every subsequent occasion. There, was, however, sufficient to afford a very good promise for the future ; and the Fellows and Visitors to the number of about 1,700, appeared generally to be highly gratified.

The second Exhibition, on Saturday, the 22nd of June, showed a great superiority in the number and merit of the articles, as well as in the general effect. The Roses, in particular, were in great beauty and profusion ; the weather was as favourable as could be wished, and above 2,000 Fellows and Visitors attended on the occasion. The third, and last, on Saturday the 20th of July, was little inferior to the second in respect of flowers, and afforded a handsome display of fruit. The attendance, owing to the overcast gloomy state of the atmosphere, and the lateness of the season, was thinner, there being only about 1,200 persons present. But the satisfaction expressed on this, as well as on the previous days, was sufficient to prove that the experiment had succeeded, and that the plan was likely to contribute greatly to promote the interests of the Society, as well as those of Horticulture in general.

Upon each of the above days the flowers were arranged on the table, as nearly as possible by 11 o'clock, with numbers only to each Exhibition. The Judges then proceeded to their examination,

till a little before 1 o'clock, the time of opening the Garden to Visitors. The Judges then drew up their award, and labels, with the names of the exhibitors, were affixed to each article; copies of the award being suspended in various parts of the tent for the information of the Visitors.

The Judges named on the 25th of May, were JOHN ALLNUTT, ESQ., MR. J. A. HENDERSON, and DR. HENDERSON, who agreed upon the following award:

THE LARGE SILVER MEDAL.

1. For a choice Collection of Greenhouse Plants, from *Mr. Seward Snow*, Gardener to J. H. Palmer, Esq., F. H. S.

THE BANKSIAN MEDAL.

1. For Heartsease and Tulips, from *Mr. C. Brown*, of Slough, F. H. S.
2. For China Roses and Azaleas, from *Mr. John Lee, F. H. S.*
3. For Pelargoniums and Yellow Noisette Roses, from *Messrs. Colley* and *Hill.*
4. For a Collection of Greenhouse Plants, from *Messrs. Chandler.*
5. For Flowers and Fruit, from *Mr. G. Mills, F. H. S.*, Gardener to A. Copland, Esq., F. H. S.
6. For Oncidium altissimum, from *Mrs. Colvill.*
7. For Forced Apricots, Raspberries, Melons, &c., from *P. C. Labouchere, Esq. F.H.S.*
8. For Rhododendrons and Azaleas, from *Mr. M. Waterer, F. H. S.*

On the 22nd. of June the Judges were THE REV. F. BELFIELD, JUN., ROBERT MANGLES, ESQ., and MR. JOHN RONALDS, who agreed upon the following award:

THE LARGE SILVER MEDAL.

1. For a Collection of Plants and for Cucumbers, from *Mr. Seward Snow*, Gardener to J. H. Palmer, Esq. *F. H. S.*
2. For a Collection of Greenhouse Plants, from *Messrs. Chandlers.*

THE BANKSIAN MEDAL.

1. For Heartsease, from *Mr. C. Brown*, of Slough, *F. H. S.*
2. For a Collection of Plants, from *Mr. W. Redding*, Gardener to Mrs. Marryat, *F.H.S.*
3. For a Collection of Heaths, from *Mr. T. Blair*, Gardener to Miss Martineau, *F.H.S.*

4. For a Collection of Roses, from *Mr. T. Rivers*, of Sawbridgeworth.
5. For a Collection of Heaths, from *Mr. J. Buchanan, F. H. S.*
6. For a Collection of Balsams, from *Mr. Cock*, of Chiswick.
7. For Geraniums, &c. from *Messrs. Colley* and *Hill*, of Hammersmith.
8. For a Collection of Plants, from *Mr. J. Snow*, Gardener to Sir H. Jenner, *F. H. S.*
9. For a Collection of Roses, from *Mr. John Lee, F. H. S.*
10. For a Collection of Roses, from *Mr. Stephen Hooker, F. H. S.*
11. For Grapes, from *Mr. Gibbs*, Gardener to D. Haigh, Esq., of Streatham.
12. For Strawberries, from *John Allnutt, Esq., F. H. S.*
13. For Kalmias, Pinks and Heartsease, from *Mr. Glenny, F.H.S.*
14. For Scarlet Balsams, from *Wm. King, Esq., F. H. S.*
15. For Magnolia macrophylla, from *Mr. W. Lindsay*, Gardener to the Duke of Devonshire, *F. H. S.* at Chiswick.
16. For Fruit and Cockscombs, from *Mr. George Mills, F. H. S.*, Gardener to A. Copland, Esq., F. H. S.

Upon this occasion the general character of the Exhibition, as well as the objects exhibited, was materially improved. The numbers of Exhibitions and Medals awarded being as follows :—

	Number of Exhibitions.	Medals Awarded.	
		Large Silver.	Banksian.
Heartsease	2	—	1
Roses	9	—	3
Heaths	3	—	2
Miscellaneous Flowers ..	23	2	7
Fruits	7	—	3
Total	44	2	16

On the 20th of July, MR. RICHARD FORREST, MR. JOHN WILMOT, and DR. HENDERSON, were appointed Judges, and decided upon the following award:

THE LARGE SILVER MEDAL.

1. For Black Hamburgh Grapes, from *Mr. C. Dowding*, Gardener to Lady Clarke, East Barnet.

2. For a Collection of rare Plants, from *Mr. Redding*, Gardener to Mrs. Marryat, *F.H.S.*
3. For Carnations and Piccotees, from *Mr. Hogg*, of Paddington.

THE BANKSIAN MEDAL.

1. For Pines and Grapes, from *Mr. John Wilson*, Gardener to the Earl of Surrey, *F.H.S.*
2. For Flowers and Fruit, from *Mr. S. Snow*, Gardener to J. H. Palmer, Esq., *F.H.S.*
3. For Cockscombs and other Flowers, from *Mr. J. Faulkner*, Gardener to Archdale Palmer, Esq., of Cheam.
4. For Dahlias, from *Mr. Cooper*, Cannon Hill, Maidenhead.
5. For German Stocks, from *Mr. Hopwood*, of Twickenham.
6. For Carnations, Piccotees, and Dahlias, from *Mr. Glenny*, *F.H.S.*

The Exhibition was still more varied than the last. The result of the awards, as compared with the number of individuals exhibiting, was as follows :—

	Number of Exhibitions.	Medals Awarded.	
		Large Silver.	Banksian.
Dahlias	12	—	1
Heartsease	2	—	—
Roses	3	—	—
Carnations and Piccotees	4	1	1
Miscellaneous Flowers	19	1	3
Fruits	14	1	1
Total	54	3	6

In the commencement of the present year, 1834, the Council in ordering the continuance of the Exhibitions on the same plan, being aware of some confusion and inconsistencies in the awards of the preceeding year, appointed a Committee to determine the subjects for which prizes should be offered. After much consideration they agreed on the following Regulations.

SUBJECTS OF EXHIBITION.

Specimens of any of the Plants or Fruits named in the following list will be received on each or any of the days of exhibition; but it is to be understood, that it is not intended to exclude, by the publication of this list, other rare or beautiful specimens, provided any such should be sent for exhibition. Medals, as hereafter explained, are offered for

1. Rhododendrons or Azaleas (either cut flowers, or in pots), in collections not exceeding 12 dissimilar varieties of each.
2. Tulips or Ranunculuses, in stands of 24 dissimilar varieties.
3. Heartsease, in stands of 30 dissimilar specimens.
4. Cape Heaths, in collections of 12 species.
5. China Roses (including Noisette and other hybrids), in collections of 20 dissimilar varieties.
6. Garden Roses, in collections of 50 dissimilar varieties.
7. Pelargoniums, in collections of 12 dissimilar varieties.
8. Carnations, Pinks, or Piccotees, in collections of 12 dissimilar varieties of each.
9. Calceolarias, in collections of 6 pots.
10. Stove Orchideous Plants.
11. China Asters, in stands of 50 specimens.
12. Dahlias, new seedling.
13. Dahlias, in collections not exceeding 20 in number.
14. Stove or Greenhouse Plants in pots, in collections not exceeding 10 species each.
15. Pine Apples.
16. Peaches and Nectarines, in dishes of 6 specimens.
17. Plums, in dishes of 12 specimens.
18. Grapes.
19. Melons, single specimens.
20. Miscellaneous Fruits, such as Pears, Apples, Figs, Strawberries, &c.
21. Cucumbers in braces.

JUDGES AND MEDALS.

For each Meeting, three Judges will be selected from among Fellows of the Society, or others, not Exhibitors, who will determine to whom Medals are to be awarded, under the following conditions.

No person will be entitled to receive a Medal unless the plants exhibited have been in his possession for at least four months prior to the day of exhibition, and any award made to an Exhibitor who shall be found to have violated this rule, will be void.

The Medals will be of three classes.

First class:—Gold Banksian.
Second class:—Large Silver.
Third class:—Silver Banksian.

Three Medals, namely, one of each class, will be given for the three best exhibitions of either Roses, Stove or Greenhouse Plants, Stove Orchideous Plants, or Grapes.

Two medals, namely, one of the 2nd class, and one of the 3rd, will be given for the best exhibitions of Rhododendrons or Azaleas, Pelargoniums, China Asters, Cape Heaths, Dahlias, Pine Apples, or Melons.

One medal of the 3rd class will be given for the best exhibition of Tulips, Ranunculuses, Heartsease, Carnations, Calceolarias, Peaches, Plums, or Cucumbers.

Two medals, namely, one of the 1st, and one of the 3rd class, will be given for the best exhibitions of miscellaneous objects not comprehended under any of the foregoing heads. But the Judges will be instructed, notwithstanding these Regulations, to exercise their own discretion in withholding medals for any of the above-mentioned objects, if it should appear to them that the specimens do not possess sufficient merit to deserve them; they may also refuse the distinction of a medal of the first or second classes, and grant only one of the third class, or they may vary their award in any other way that circumstances may render advisable.

The gaining of a medal for one description of exhibition, will not disqualify a competitor from gaining prizes for other objects. But it is to be understood, that no person can gain more than one medal of each class upon the same day: and if any Exhibitor should be considered by the Judges entitled to more than one of any class, he shall receive an inscribed bronze medal as a certificate of the award.

FLOWER STANDS.

Provision will be made by the Society for placing on the tables such specimens as may be furnished by Exhibitors; but as some flowers travel most securely, when fixed permanently in boxes, and as many persons prefer their own stands, it has been determined that any Exhibitors may use their own boxes or stands, under the following conditions.

No box or stand shall exceed eight inches in height at the back, or eighteen inches in depth from front to back. The lids of all boxes must either be loose or made to unhinge. No box with a fixed lid will, on any pretence, be allowed to stand upon the tables.

TIME OF DELIVERY OF OBJECTS FOR EXHIBITION.

As the Garden will be opened at 1, P.M., for the general admission of Visitors, it is necessary that the Judges should proceed to consider the respective merits of the exhibitions by 11, A.M., and as it is absolutely indispensable that the tables should be in order by that time, it has been determined that *no subjects for exhibition shall be*

admitted into the Garden after half-past nine o'clock in the morning; and if the owners of any locked-up boxes, or other cases already received, should not be in the Exhibition Tent at the same hour, such cases or boxes must be excluded from the exhibition.

All specimens, whether Fruit or Flowers, will remain untouched until after six o'clock, when they will be delivered into the hands of the Exhibitors.

The price of the tickets was fixed at 3*s*. 6*d*. before the first Meeting of the Society in April, and 5*s*. after that time, and all other regulations remained the same as the previous year.

The three first Meetings held on the 10th of May, 7th of June, and 5th of July, far exceeded those of the year 1833 in beauty and variety of subjects exhibited, as well as in the numbers of Visitors who attended. The splendour of the Cacti at the May Meeting, and the variety of Green-house and other plants, with a few fine fruits at the two others, excited general admiration; and the Council have now considered the experiment to be fully tried, and have determined on the permanent continuance of similar Exhibitions.

With the merit of the subjects exhibited the number of prizes awarded has necessarily much increased, and various additional arrangements have been required, in consequence of the large number of Visitors who have been present. The expence of these Meetings has, therefore, far exceeded the original calculations; yet there seems every probability of a considerable surplus of receipt over expenditure, and of this surplus the Council have ordered that, after the present year, one half only be applied to the general purposes of the Society, and the remainder be set apart, and invested as a reserved fund, for the accomplishment of an object of great importance to the Society and to the science in general: the construction of an extensive range of Hot-houses, which shall enable the Society to prosecute its researches in the Hot-house department on the same scale as it has hitherto done, with regard to hardy plants.

A portion of the surplus of the present year has been ordered to be applied to the laying out, and connecting with the Arboretum, that part of the Garden which has been reserved for the site of the intended houses.

The Judges appointed on the occasion of each Exhibition, for the present year, 1834, were Mr. J. A. Henderson, Nurseryman, of Pine-Apple Place; Mr. R. Forrest, late Gardener to the Duke of Northumberland; and Mr. Richardson, Gardener to the Earl of Tankerville.

The Exhibition, on the 10th of May, was attended by 1,402 Fellows and Visitors. The number of Exhibitors was 43. The award of the Judges was as follows:—

THE GOLD BANKSIAN MEDAL.

1. For a Collection of Stove and Greenhouse Plants, exhibited by *Mr. Green*, Gardener to Sir E. Antrobus, Bart. *F. H. S.*
2. For Grapes and Pine-Apples, exhibited by *Mr. Dowding*, Gardener to Lady Clarke.
3. For a miscellaneous Collection of Plants from *Messrs. Rollissons* of Tooting.

THE LARGE SILVER MEDAL.

1. For Stove and Greenhouse Plants, exhibited by *Mr. Falconer*, Gardener to Archdale Palmer, Esq.
2. For Grapes, from *Mr. John Wilmot, F. H. S.* of Isleworth.
3. For Azaleas, from *Mr. M. Waterer, F. H. S.*, of Knap Hill, near Bagshot.
4. For Pelargoniums, from *Messrs. Colley and Hill*, of Hammersmith.
5. For a miscellaneous Collection of Plants, exhibited by *Mr. S. Snow*, Gardener to J. H. Palmer, Esq. *F. H. S.*
6. For a miscellaneous Collection of Plants, from *Mr. Gaines*, Surrey Lane, Battersea.

THE SILVER BANKSIAN MEDAL.

1. For a Collection of Heartsease, from *Mr. Salter*, of Shepherd's Bush.
2. For Cucumbers, from *Mr. George Mills, F. H. S.* Gardener to Alexander Copland, Esq. *F. H. S.*
3. For a miscellaneous Collection of Flowers, from the same.
4. For a miscellaneous Collection of Flowers, from *Mrs. Lawrence, F. H. S.*
5. For a miscellaneous Collection of Flowers, from *Mr. Redding*, Gardener to Mrs. Marryat, F. H. S.
6. For Forced Apricots and Raspberries, from *P. C. Labouchère, Esq. F. H. S.*
7. For a Plant of Boronia serrulata, from *Mr. Douglas*, Gardener to the Earl de Grey, *F. H. S.*
8. For Citrons and Shaddocks, from *Peter Fry, Esq.* Compton House, Somersetshire.

The result of the award, as compared with the objects exhibited, was as follows :—

	Number of Exhibitions.	Medals Awarded.		
		Gold.	Large Silver.	Silver Banksian.
Rhododendrons and Azaleas	5	—	1	—
Ranunculuses	1	—	—	—
Heartsease	5	—	—	1
Cape Heaths	2	—	—	—
Roses	1	—	—	—
Pelargoniums	5	—	1	—
Carnations, Pinks, &c.	1	—	—	—
Calceolarias	7	—	—	—
Stove Orchideous Plants	4	—	—	—
Stove or Greenhouse Plants	20	1	1	—
Pine Apples	1	—	—	—
Grapes	3	1	1	—
Miscellaneous Fruits	5	—	—	2
Cucumbers	2	—	—	1
Miscellaneous Flowers	4	1	2	4
Total	66	3	6	8

The Exhibition on the 7th of June was attended by 2,870 Fellows and Visitors. The number of Exhibitors was 39. The award of the Judges was as follows :—

THE GOLD BANKSIAN MEDAL.

1. For Grapes and Pines exhibited by *Mr. Dowding*, Gardener to Lady Clarke.
2. For a miscellaneous Collection of Flowers, from *Mrs. Lawrence, F. H. S.*
3. For Garden Roses, from *Mr. T. Rivers*, of Sawbridgeworth.

THE LARGE SILVER MEDAL.

1. For Garden Roses, from *Mr. Stephen Hooker, F. H. S.*
2. For a miscellaneous Collection of Plants, from *Mr. Seward Snow*, Gardener to J. H. Palmer, Esq. *F. H. S.*
3. For Stove and Greenhouse Plants, from *Mr. John Green*, Gardener to Sir E. Antrobus, Bart. *F. H. S.*
4. For China Roses, from *Mr. Stephen Hooker*, of Brenchley, *F. H. S.*
5. For Pine Apples, from Henry John Grant, Esq. *F. H. S.*
6. For Pelargoniums, from *Messrs. Colley and Hill*, of Hammersmith.
7. For Forced Fruit, from *Mr. W. Deas*, Gardener to the Duke of Norfolk, *F. H. S.*

8. For Forced Fruit, from *Mr. Hugh Frazer*, Gardener to Sir C. Sullivan, Bart. *F.H.S.*
9. For Alströmerias, from *Charles Barclay, Esq. F. H. S.*

THE SILVER BANKSIAN MEDAL.

1. For Roses, from *Messrs. Rollisson*, of Tooting.
2. For a miscellaneous Collection of Plants from *Mr. Redding*, Gardener to Mrs. Marryat, *F. H. S.*
3. For Rhododendrons, from *Mr. M. Waterer, F. H. S.* of Knap Hill,
4. For American Plants, from the same.
5. For Pelargoniums, from *Mr. Wilson*, of Clewer Lodge.
6. For Heartsease, from *Mr. George Glenny*, of Twickenham, *F. H. S.*
7. For Calceolarias, from *Mr. John Green*, Gardener to Sir E. Antrobus, Bart., *F.H.S.*
8. For Ranunculuses, from *Mr. Henry Groom*, of Walworth, *F. H. S.*
9. For Balsams and Cockscombs, from *Mr. Cock*, of Chiswick.
10. For Pinks and Piccotees, from *Mr. Hogg*, of Paddington.
11. For a new Frontignan Grape, from *Mr. John Wilmot*, of Isleworth, *F. H. S.*
12. For Strawberries, from *Mr. C. Knevett*, of Turnham Green.
13. For Cucumbers, from *Mr. Seward Snow*, Gardener to J. H. Palmer, Esq., *F. H. S.*

The result of the award, as compared with the objects exhibited, was as follows:—

	Number of Exhibitions.	Medals Awarded.		
		Gold.	Large Silver.	Silver Banksian.
Rhododendrons and Azaleas	3	—	—	1
Ranunculuses	2	—	—	1
Heartsease	7	—	—	1
Cape Heaths	2	—	—	—
Roses	8	1	2	1
Pelargoniums	7	—	1	1
Carnations, Pinks, &c	5	—	—	1
Calceolarias	3	—	—	1
Stove Orchideous Plants	1	—	—	—
Stove or Greenhouse Plants	13	—	1	—
Pine Apples	4	—	1	—
Peaches and Nectarines	2	—	—	—
Grapes	6	1	—	1
Melons	3	—	—	—
Miscellaneous Fruits	5	—	2	1
Cucumbers	6	—	—	1
Miscellaneous Flowers	5	1	2	3
Total	82	3	9	13

The Exhibition on the 5th of July was attended by 3,076 Fellows and Visitors. The number of Exhibitors was 40. The award of the Judges was as follows:—

THE GOLD BANKSIAN MEDAL.

1. For Grapes, from *Mr. John Wilmot*, of Isleworth, *F. H. S.*
2. For a miscellaneous Collection of Plants, from *Mrs. Lawrence*, *F. H. S.*
3. For China and Noisette Roses, from *Mr. Rivers*, of Sawbridgeworth.
4. For Garden Roses, from *Mr. Steph. Hooker*, of Brenchley, near Lamberhurst, *F. H. S.*

THE LARGE SILVER MEDAL.

1. For a miscellaneous Collection of Plants, from *Mr. John Green*, Gardener to Sir Edmund Antrobus, Bart., *F. H. S.*
2. For miscellaneous Fruits, from *Mr. George Mills*, *F. H. S.* Gardener to Alexander Copland, Esq. *F. H. S.*
3. For Pelargoniums, from *Messrs. Colley and Hill*, of Hammersmith.
4. For Dahlias, from *Mr. Hopwood*, of Twickenham.
5. For Dahlias, from *Mr. Redding*, Gardener to Mrs. Marryat, *F. H. S.*
6. For an Enville Pine, from *Mr. John Wilmot*, of Isleworth, *F. H. S.*
7. For Queen Pines, from *Mr. William Greenshields*, *F. H. S.* Gardener to R. B. De Beauvoir, Esq. *F. H. S.*
8. For Melons, from *Mr. John Wilmot*, of Isleworth, *F. H S.*
9. For Peaches and Nectarines, from *Mr. John Mearns*, *F. H. S.*, Gardener to the Duke of Portland, *F. H. S.*
10. For Carnations, from *Mr. Hogg*, of Paddington.
11. For Cape Heaths, from *Messrs. Rollissons*, of Tooting.
12. For English Piccotees, from *Mr. Hogg*, of Paddington.
13. For Grapes, from *Mr. Turner*, Gardener to George Byng, Esq.
14. For China Roses, from *Mr. Stephen Hooker*, *F. H. S.*
15. For miscellaneous Roses, from *William Harrison, Esq.*, *F. H. S.*
16. For Cockscombs, from *Mr. Falconer*, Gardener to Archdale Palmer, Esq.
17. For Orchideous Plants, from *Messrs. Rollissons*, of Tooting.
18. For Balsams, from *Mr. John Green*, Gardener to Sir Edmund Antrobus, Bart., *F. H. S.*
19. For Elichrysum, sp. from *Robert Mangles, Esq. F. H. S.*

THE SILVER BANKSIAN MEDAL.

1. For Heartsease, from *Mr. Wilmer*, of Sunbury.
2. For Peaches and Nectarines, from *Mr. Bradley*, Gardener to the Earl of Arran, *F. H. S.*

3. For Cucumbers, from *Mr. Seward Snow*, Gardener to John Horsley Palmer, Esq., *F. H. S.*
4. For Currants, from *Mr. John Wilmot*, of Isleworth, *F. H. S.*
5. For Black Hamburgh Grapes, from *Mr. R. Clews*, of Acton, *F. H. S.*
6. For Grapes, from *Mr. Andrews*, Gardener to R. Patterson, Esq. of Blackheath.
7. For Bigarreau Cherries, from *Mr. Jarvis*, of Turnham Green.
8. For Melons, from *Mr. Davis*, Gardener to ——— Strange, Esq., Upton, Essex.
9. For Perpetual Roses, from *Mr. Rivers*, of Sawbridgeworth.
10. For Roses, from *Mr. Wilmer*, of Sunbury.
11. For Piccotees, from *Mr. Wilmer*, of Sunbury.
12. For Pelargoniums, from *Mr. Gaines*, Surrey Lane, Battersea.
13. For Balsams, Cockscombs and Dahlias, from *Mr. William Cock*, of Chiswick.
14. For a miscellaneous collection of Plants, from *Mr. Redding*, Gardener to Mrs. Marryat, *F. H. S.*

The result of the award, as compared with the objects exhibited, was as follows :—

	Number of Exhibitions.	Medals Awarded.		
		Gold.	Large Silver.	Silver Banksian.
Heartsease	4	—	—	1
Cape Heaths	3	—	1	—
Roses	8	2	2	2
Pelargoniums	2	—	1	1
Carnations, &c.	3	—	2	1
Calceolarias	1	—	—	—
Stove Orchideous Plants	3	—	1	—
Seedling Dahlias	1	—	—	—
Collections of Dahlias	4	—	2	—
Stove or Greenhouse Plants	17	—	—	—
Pine Apples	4	—	2	—
Peaches and Nectarines	3	—	1	1
Grapes	7	1	1	2
Melons	4	—	1	1
Miscellaneous Fruits	3	—	1	2
Cucumbers	3	—	—	1
Miscellaneous Flowers	8	1	4	2
Total	78	4	19	14

In consequence of some representations that were made to the

Council concerning the objects likely to be exhibited on the 13th of September, the following alterations were made in the Regulations; firstly, with a view to offer a greater inducement to exhibitions of Dahlias; and, secondly, to check a practice which the Council had reason to believe had been adopted by some of the Exhibitors, of shewing plants not of their own growth and cultivation.

Dahlias were to be exhibited—

1. In collections of 100 dissimilar varieties. For the two best of such collections *Gold Medals* were offered, and for the two next best, *Large Silver Medals.*

2. In collections of 25 dissimilar varieties. For the two best of such collections *Large Silver Medals* were offered, and for the two next best, *Silver Banksian Medals.*

3. As Seedlings, in lots not exceeding three each. For the two best of these, *Silver Banksian Medals* were offered.

China Asters were to be exhibited in collections of *twenty* distinct varieties.

All other regulations remained the same, except that every Exhibitor was required to sign a written declaration that every article exhibited had been in possession of the Exhibitor for at least four months.

It was also determined to add Mr. Thomas Ingram, of the Royal Gardens, Windsor, to the number of Judge s,for the purpose of facilitating the determination of the respective merits of the exhibitions. The number of Fellows and Visitors who attended on this occasion was only 897; but the number of Exhibitors was no less than 92; the shew consisted chiefly of fruit and Dahlias, the display of the latter was magnificent. The awards of the Judges were as follow :—

THE GOLD BANKSIAN MEDAL.

1. For miscellaneous Fruit, from *Mr. C. Dowding*, Gardener to Lady Clarke.
2. For miscellaneous Plants, from *Mr. Redding*, Gardener to Mrs. Marryat, *F. H. S.*
3. For a Collection of 100 Dahlias, from *Mr. C. Brown, F. H. S.*
4. For a Collection of 100 Dahlias, from *Mr. Glenny, F. H. S.*

THE LARGE SILVER MEDAL.

1. For Grapes, from *Mr. Atlee*, Gardener to T. Farmer, Esq. *F. H. S.*

2. For Muscat Grapes, from *Mr. R. Buck, F. H. S.*, of Blackheath.
3. For a Queen Pine, from *Mr. Fletcher*, Gardener to George Smith, Esq.
4. For a New Providence Pine, from *Mr. William Bridden*, Gardener to Mrs. Myddleton Biddulph.
5. For Green-fleshed Melons, from *Mr. J. Loudon*, Gardener to Samuel Gurney, Esq. *F. H. S.*
6. For Gansell's Bergamot Pears, from *Mr. William Lindsay*, Gardener to the Duke of Devonshire, *F. H. S.*
7. For Beurrée Diel Pears, from *Mr. Jarvis*, of Turnham Green.
8. For a Collection of Apples, from *Mr. Jos. Kirke, F. H. S.*
9. For miscellaneous Plants, from *Mr. Upright*, Gardener to C. G. Ridge, Esq. of Morden.
10. For miscellaneous Plants, from *Mr. George Mills. F. H. S.*
11. For Epidendrum cuspidatum, from *Messrs. Rollisson*, of Tooting.
12. For China and perpetual Roses, from *Mr. Stephen Hooker, F. H. S.*
13. For miscellaneous Roses, from *Messrs. Rollisson.*
14. For a Collection of 100 Dahlias, from *Mr. Widnall*, of Cambridge.
15. For a Collection of 100 Dahlias, from *Mr. Gaines*, of Surrey Lane, Battersea.
16. For a Collection of 25 Dahlias, from *Mr. C. Brown*, of Slough, *F. H. S.*
17. For a Collection of 25 Dahlias, from *Mr. Widnall*, of Cambridge.

THE SILVER BANKSIAN MEDAL.

1. For Black Hamburgh Grapes, from *Mr. Clews, F. H. S.*
2. For Melons, from *Mr. Spong, C.M.H.S.* Gardener to Robert Gordon, Esq., M. P., *F. H. S.*
3. For Apples, from *Mr. Jarvis*, of Turnham Green.
4. For Citrons, from *Mr. Boone*, Gardener to S. Warner, Esq., *F. H. S.*
5. For Cucumbers, from *Mr. Cuthill*, Gardener to Laurence Sullivan, Esq., *F. H. S.*
6. For Yucca Aloifolia, from *George Robins, Esq., F. H. S.*
7. For Brugmansia Arborea, from *Mr. Spence*, Gardener to R. Durant, Esq., *F. H. S.*
8. For Heartsease, from *Mr. Mountjoy*, of Ealing.
9. For miscellaneous Heartsease, from *Mr. C. Brown*, of Slough, *F. H. S.*
10. For China Asters, from *Mr. Rivers*, of Sawbridgeworth.
11. For Seedling Dahlias, from *Mr. Brewer*, of Cambridge.
12. For Seedling Dahlias, from *Mr. Henderson*, Gardener to Captain Foster, *F. H. S.*
13. For 25 varieties of Dahlia, from *Mr. Wilmer*, of Sunbury.
14. For 25 varieties of Dahlia, from *Mr. Maher*, Gardener to the Hon. John Westenra, Fifield, Berks.
15. For a Collection of 100 Dahlias in Pots, from *Mr. Catleugh*, of Hans Street, Sloane Street.

The result of the award, as compared with the objects exhibited, was as follows:—

	Number of Exhibitions.	Medals Awarded.		
		Gold.	Large Silver.	Silver Banksian.
Heartsease	3	—	—	2
Cape Heaths	1	—	—	—
Roses	8	—	2	—
Stove Orchideous Plants	2	—	1	—
China Asters	5	—	—	1
Stove or Greenhouse Plants	9	—	—	—
Seedling Dahlias	32	—	—	2
Dahlias, in collections of 100 varieties	23	2	2	1
Dahlias, in collections of 25 varieties	39	—	2	2
Pine Apples	7	—	2	—
Peaches and Nectarines	2	—	—	—
Plums	1	—	—	—
Grapes	12	—	2	1
Melons	9	—	1	1
Miscellaneous Fruits	17	1	3	2
Cucumbers, in braces	5	—	—	1
Miscellaneous Flowers	9	1	2	2
Total	184	4	17	15

The Meetings for the year 1835 are fixed for the 9th May, the 6th June, and the 4th July.

List of Persons to whom the Large Silver Medal has been presented by order of the Council of the HORTICULTURAL SOCIETY OF LONDON, *from April* 30, 1833, *to December* 31, 1834.

To Mr. STEPHEN HOOKER, F. H. S. for a collection of Roses exhibited July 2, 1833.

To J. H. TREMAYNE, Esq. for the introduction of the Benthamia fragifera.

To J. H. LANCE, Esq. for the importation of a fine collection of Orchideous Epiphytes from Surinam.

List of Persons to whom the Banksian Medal has been presented by order of the Council of the HORTICULTURAL SOCIETY OF LONDON, *for Exhibitions at General Meetings of the Society, from April* 30, 1833, *to December* 31, 1834.

To Mr. JOHN GREEN, Gardener to Sir EDMUND ANTROBUS, Bart. F. H. S. for specimens of Cactus exhibited May 21, 1833.

To Mr. JOHN WILMOT, Jun. for seedling Red Currants exhibited July 20, 1833.

List of Medals presented to PROVINCIAL HORTICULTURAL SOCIETIES *within the United Kingdom.*

For the Year 1831.

By the CALEDONIAN HORTICULTURAL SOCIETY, to Mr. WILLIAM MACNAB, Superintendent of the Royal Botanic Garden at Edinburgh, for his exhibition of most admirable specimens of many of the most rare and splendid of the Cape heaths, and for his excellent essay on their culture.

By the EVESHAM HORTICULTURAL SOCIETY, to Mr. THOMAS HIGNELL, of Tewkesbury, Nurseryman, for his numerous specimens of highly flavoured seedling apples, exhibited at the Meetings of the Society during the last four years.

By the GLASGOW HORTICULTURAL SOCIETY, to Mr. GEORGE AITKEN, Gardener to T. BROWN, Esq. at Lanfin, Ayrshire, for a Journal of garden work kept by him, with an accompanying relative plan.

By the HEREFORD HORTICULTURAL SOCIETY, to Mr. THOMAS HILL, Gardener to WILLIAM PATISHALL, Esq. for his industry and successful attention to Horticulture, and for having particularly distinguished himself in the practical branches of it.

By the LIVERPOOL HORTICULTURAL SOCIETY, to Mr. GEORGE BRAIDE, Gardener to HENRY WILSON, Esq. for the best, and most numerous, specimens of Horticultural produce exhibited.

Medals presented to Provincial Horticultural Societies *within the United Kingdom.*

For the Year 1832.

By the CALEDONIAN HORTICULTURAL SOCIETY to Mr. George Shiells, Gardener at Erskine House, for his valuable communications regarding the culture of the Grape Vine against flued walls in North Britain; and for admirable specimens of black Hamburgh Grapes sent to various Meetings of the Society from the flued walls of Erskine House, the bunches being equal in size, and the berries in ripeness and flavour to those produced under glass.

By the DUNDEE HORTICULTURAL SOCIETY to David Martin, Esq., of Rose Angle, Dundee, for the production of a new Seedling Running Rose, viz., a double purple variety of R. arvensis.

By the LIVERPOOL HORTICULTURAL SOCIETY to Mr. David Murray, Gardener to William Smith, Esq., of Fullwood, for the best and most numerous specimens of Horticultural produce exhibited by him during the year 1832.

For the Year 1833.

By the CALEDONIAN HORTICULTURAL SOCIETY to Mr. Grigor Drummond, Gardener to Sir Robert Preston, Bart., for his Memoir on the cultivation of French Pears in Scotland, founded on experiments and observations made at the Abbey Garden, Culross.

Medals presented to PROVINCIAL HORTICULTURAL SOCIETIES *within the United Kingdom.*

For the Year 1834.

By the **BIRMINGHAM HORTICULTURAL SOCIETY** to Mr. JOHN WILLMORE, for having exhibited, during the past year, many fine hybrids, of superior merits, raised from seeds at Oldford, of Calceolarias, Ericas, Petunia, Willmoreana and Amaryllis Willmoreana.

By the **GLASGOW HORTICULTURAL SOCIETY** to Mr. WILLIAM GOWANS, Gardener to Mrs. CHARLES STIRLING, of Cadder, Lanarkshire, for his skill in the cultivation of the Vine, and for his statement respecting its management.

Note by the Secretary.

The considerable reduction in the number of Medals presented to Provincial Societies during the two latter years has been owing to various changes in the rules adopted relative to the awarding them. After much consideration, the following general Regulations were at length agreed upon last summer, and have been transmitted to the different Societies, several of which have already signified their intention of entering into correspondence on the proposed terms.

Extracts from the Minutes of Council of 14*th January*, 1831.

"THE Council of the Horticultural Society of London, looking to the extent to which their example has been followed by the establishment of numerous Provincial Societies, and to the interest which these Societies have excited among all classes of persons residing in the country, cannot but feel highly gratified at the success which has thus attended their endeavours to promote a pursuit of such general utility.

"It has, at all times, been one of the great objects of the Council of the London Society to afford every assistance in their power to these Provincial Societies, and several plans have been proposed, and partially adopted, with that view. For some years a large silver medal was transmitted to each Society in correspondence, but this has been, in a great measure, discontinued, as it was found, in many cases, not to answer the purposes originally intended. The Society has also frequently furnished seeds and other articles to such Societies as possessed gardens, and to some they have also presented their Transactions.

"Within the last year or two, however, the number of Provincial Societies who have applied to be admitted into correspondence has increased so rapidly, that the Council of the London Society have felt unable to promote their views as much as they would be desirous of doing, without interfering with their engagements towards their own Members. This difficulty might, however, be obviated, should the Provincial Societies be willing to contribute towards the extra expenses the London Society might incur; and, with this view, the Council of the Horticultural Society of London have agreed upon the following regulations.

"I. Any Provincial Horticultural Society, desirous of becoming one of the Societies in correspondence with the London Horticultural Society, are requested to remit to the Council of the London Society a copy of their Rules and Regulations, with a statement of their numbers, of the names of their Officers, Managing Committee, or Council, and any other information which may enable the Council to judge of the stability and importance of the Society.

"II. Any Provincial Horticultural Society whom the Council of the London Society shall admit into correspondence, will be entitled to receive from the London Society *once in each year*, grafts of fruit-trees and seeds of hardy plants, for distribution amongst their Members.

"III. If any such Society is in possession of a Library, they will also receive a copy of all Transactions or other publications which shall be published during the time the correspondence continues.

"IV. The London Horticultural Society will annually remit to each Local Society, one of their Silver Banksian Medals, to be awarded by such Provincial Society in such manner as they shall judge best calculated to promote the practical pursuit of Horticulture in their neighbourhood. The name of the person to whom the Medal shall be awarded, and the grounds of the award must be transmitted to the Secretary of the London Society, on or before the 15th day of April, in the ensuing year, in order that the list may be printed and read at the Anniversary Meeting on the 1st of May.

"V. Each Society so entering into correspondence with the London Society, shall contribute ten guineas yearly towards paying the expences thereby entailed on the London Society. The said sum of ten guineas to be payable on the 1st of January in each year for the ensuing year.

"VI. The Council of the London Society reserves to itself, and the Corresponding Society will also have the power of putting an end to such correspondence at any time, upon giving six month's notice of such intention. And if at any time, the said annual payment of ten guineas shall remain unpaid on the first day of May, it will be presumed that the Society so in arrear is desirous of discontinuing the correspondence, and their name will be omitted from the list of Corresponding Societies, laid before the Anniversary Meeting held on that day."

LIST OF BOOKS AND OTHER ARTICLES,

PRESENTED TO THE

LIBRARY OF THE HORTICULTURAL SOCIETY OF LONDON

FROM MAY 1, 1830, TO DECEMBER 31, 1834,

WITH THE NAMES OF THE DONORS.

HIS MAJESTY THE KING OF HOLLAND, F. H. S.

Flora Batava. Nos. 84 to 99 inclusive. 4to. *Amsterdam*, 1830-34.

ACADEMIA NATURÆ CURIOSORUM OF BONN.

Acta Academiæ. Vol. 16. Part. 2.

ACADÉMIE ROYALE DES SCIENCES DE L'INSTITUT DE FRANCE.

Mémoires de l'Académie. Vols. 9, 10, 11, 12. 4to. *Paris*, 1830-1833.
Mémoires présentés par divers Savans à l'Académie. Vols. 2 et 4. 4to. *Paris*.

AGRICULTURAL AND HORTICULTURAL SOCIETY OF INDIA.

Transactions of the Society. Vol. 2. 8vo. *Calcutta*, 1832.

ROYAL AGRICULTURAL SOCIETY OF VIENNA.

Transactions of the Society. Vol. 6. Part 2. 4to. and New Series, Vol. 1. Parts 1 and 2, 8vo. *Vienna*, 1831-1832.

AMERICAN PHILOSOPHICAL SOCIETY,

HELD AT PHILADELPHIA.

Transactions of the Society. Vol. 4. Parts 1, 2, and 3. 4to. *Philadelphia*, 1831-32-34.

ARBORICULTURAL SOCIETY.

Transactions of the Society. No. 1. 8vo. *Dublin*, 1831.

SOCIETY OF ARTS.

Transactions of the Society. Vols. 48 and 49. 8vo. *London*, 1830-31-32-33.

Premiums offered for the Sessions 1832-33, 1833-34, 1834-35.

ASIATIC SOCIETY OF BENGAL.

Transactions of the Physical Class of the Society, Vol. 1, Parts 1 and 2, forming Vol. 18 of the Asiatic Researches. 4to. *Calcutta*, 1829-1833.

ROYAL ASIATIC SOCIETY.

Transactions of the Society. Vol. 2, Part 2, and Vol. 3, Parts 1, 2, and 3. 4to. *London.*

Journal of the Society. No. 1. 8vo. *London*, 1834.

Catalogue of the Printed Books in the Library of the Society; and third and fourth Reports of the Oriental Translation Committee. 4to. *London*, 1830.

Proceedings of the tenth Annual Meeting of the Society. 8vo. *London*, 1833.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

First Report of the Committee. 8vo. *York*, 1832.

BRISTOL INSTITUTION.

Eighth and ninth Annual Reports of the Committee. 8vo. *Bristol*, 1831-32.

PRESIDENT AND FELLOWS OF THE ROYAL COLLEGE OF PHYSICIANS.

List of the Fellows, Candidates and Licentiates of the College. 8vo. *London*, 1833.

COMMITTEE OF SUBSCRIBERS FOR THE STATUE OF SIR JOSEPH BANKS.

Engraving of the Statue of Sir Joseph Banks, now placed in the Hall of the British Museum.

ROYAL GEOGRAPHICAL SOCIETY.

Journal of the Society. Vols. 1, 2, and 3, and Vol. 4, Part 1. 8vo. *London*.

GEOLOGICAL SOCIETY OF LONDON.

Proceedings of the Society. 8vo. *London*, 1830-31-32-33-34.
List of the Members for 1833. 8vo.
Transactions of the Society. Vol. 3, Part 2. 4to. *London*, 1832.

HORTICULTURAL SOCIETY OF BERLIN.

Transactions of the Society. Vol. 6, Part 2, Vols. 7, 8, and 9 , and Vol. 10, Part 1. 4to. *Berlin*, 1830-1834.

HORTICULTURAL SOCIETY OF CAMBRIDGE.

Sixth Report of the Committee. 8vo. *Cambridge*, 1830.

LINNEAN SOCIETY.

Transactions of the Society. Vol. 16, Parts 2 and 3. 4to. *London*.

LITERARY AND HISTORICAL SOCIETY OF QUEBEC.

Transactions of the Society. Vol. 3, Parts 1 and 2, 8vo. *Quebec*, 1832-33.

MEDICO-BOTANICAL SOCIETY.

Address of the President of the Society at its Anniversary Meeting, January 16, 1831.

MUSÉUM D'HISTOIRE NATURELLE.

Nouvelles Annales du Muséum. Vols. 1 et 2. 4to. *Paris.*

OXFORD BOTANICAL AND NATURAL HISTORY SOCIETY.

First Report of the Committee. 8vo. *Oxford,* 1832.

ROYAL BAVARIAN ACADEMY.

Abhandlungen der Mathematisch-Physikalischen Classe der Kœnig-lich Bayerischen Akademie der Wissenschaften. Vol. 1. 4to. *Munich,* 1832.

MANAGERS OF THE ROYAL INSTITUTION.

Quarterly Journal of Science, Literature, and Art. New Series. No. 14. 8vo. *London,* 1830.

Journal of the Royal Institution. Nos. 1 to 4. 8vo. *London,* 1830-31.

ROYAL PRUSSIAN ŒCONOMICAL SOCIETY.

Monatsblatt der Kœniglich Preussischen Merkischen ökonomischen Gesellschaft zu Potsdam, 11th year. 1832. 8vo. *Potsdam,* 1832.

ROYAL SOCIETY OF LONDON.

Philosophical Transactions of the Society for the years 1831and 1832, 4 Parts, and 1833, Part 1.

List of the Fellows of the Society. 4to. 1833.

Alphabetical Index of the matter contained in the Transactions of the Society from 1821 to 1830, inclusive. 4to. *London,* 1833.

Addresses delivered at the Anniversary Meetings, November 30, 1831, and November 30, 1832, by His R. H. the Duke of Sussex. 4to. *London,* 1833.

Proceedings of the Society for the Sessions 1830-31, 1831-32,1832-33. 8vo.

ROYAL SOCIETY OF EDINBURGH.

Transactions of the Society. Vol. 11. Part 2. and Vol. 12. Parts 1 and 2. 4to. *Edinburgh,* 1831.

Proceedings of the Society, Nos. 1, 2 and 3, 1832-33-34.

SOCIÉTÉ ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND.

50me Exposition Publique de la Société, Salon d'Hiver. 4to. *Ghent*, 1834.

51me Ditto Ditto Salon d'Été. *Ghent*, 1834.

SOCIÉTÉ ROYALE D'AGRICULTURE ET DE COMMERCE DE CAEN.

Memoires de la Société, tome 3. 8vo. *Caen*, 1830.

Catalogue des produits des Arts du Département du Calvados que seront exposés à Caen, Avril 1834. 8vo.

Rapports sur la 5me Exposition des Produits des Arts du Calvados, 1834.

Rapport sur la Séance Publique tenue Avril 1834. 8vo.

SOCIÉTÉ D'HORTICULTURE DU DÉPARTEMENT DU NORD.

Annales de la Société d'Horticulture du Département du Nord; trimestres 2, 3, 4, 1830. 1, 2, 3, 4, 1831. 1, 3, 4, 1832. 2, 3, 4, 1833. 1, 2, 1834. 8vo. *Lille.*

SOCIÉTÉ DE PHYSIQUE ET D'HISTOIRE NATURELLE DE GENÈVE.

Memoires de la Société. Vols. 5 and 6. 4to. *Geneva*, 1832-1833.

SOCIÉTÉ FRANCAISE DE STATISTIQUE UNIVERSELLE.

du Bulletin de la Société. Nos. 1 et 2. 4to. *Paris*, 1830-31.

ZOOLOGICAL SOCIETY OF LONDON.

Transactions of the Society. Vol. 1. Parts 1 and 2. 4to. *London*, 1833-34.

Proceedings of the Committee of Science and Correspondence. Parts 1 and 2. 8vo. *London*, 1830-31-32.

Proceedings of the Society, Nos. 1 to 17. 8vo. *London*, 1833-34.

EDITOR OF THE ATHENÆUM.

The "Athenæum" for 1831, 1832, 1833, and from January to June inclusive, 1834. 4to. *London.*

MESSRS. AUDIBERT.

Catalogues of the Fruit Trees, Shrubs, and Ornamental Plants, cultivated in their Nurseries at Tonelle, near Tarascon. *Avignon*, 1830-31-32.

MR. WILLIAM BAXTER.

British Flowering Plants, Nos. 1 to 29. 8vo. *Oxford*, 1832, 1833-34.

GEORGE BENTHAM, ESQ. SECRETARY.

Catalogue of the Plants cultivated in the Conservatories of the Baron Charles Von Hügel.

Dictionnaire du Bon Jardinier. 4 Vols. 8vo. *Paris*, 1830.

Cours de Culture et de Naturalisation des Végétaux. 3 Vol. 8vo. *Paris*, 1827.

MESSRS. BOOTH.

Catalogue of the Hardy Plants in their Collection, at Flottbeck, near Hamburgh. 8vo. 1833.

DON CLAUDIO BOUTELOU.

Elements of Agriculture. 4to. *Alicant*, 1816.

A Treatise on Grafting. 4to. *Madrid*, 1817.

A Treatise on Flowers. 4to. *Madrid*, 1827.

A Treatise on Horticulture. 4to. *Madrid*, 1813.

THE MARQUESS OF BRISTOL, F. H. S.

Gallesio's Pomona Italiana. Nos. 25 to 34 inclusive. folio. *Pisa*, 1827-1834.

M. CELS.

Nouveau Catalogue general des cultures de M. M. P. Cels. 8vo. *Paris*, 1832.

T. H. COOPER, ESQ.

Botany of the County of Sussex. 8vo. *Lewes*, 1834.

DR. DAUBENY, F. H. S.

Inaugural Lecture on the Study of Botany. 8vo. *Oxford*, 1834.

M. DE CANDOLLE, F. M. H. S.

Notices sur les Plantes rares cultivées dans le jardin de Genève. Nos. 4, 5 and 6. 4to. *Geneva*, 1831.

Histoire de la Botanique Genevoise. 4to. *Paris*, 1830.

Notice sur la longévité des Arbres. 8vo. 1831.

Essai sur la théorie des Assolemens. 8vo. *Geneva*, 1832.

Physiologie Végétale. 3 Vols. 8vo. *Paris*, 1832.

Notice sur les progrès de la Botanique pendant l'année 1832. 8vo. *Geneva*, 1833.

Notice sur quelques espèces de Cactées nouvelles ou peu communes. 4to. *Paris*, 1834.

M. ALPH. DE CANDOLLE.

Mémoire sur la Famille des Anonacées. 4to. *Geneva*, 1832.

M. DELBECQ.

Exposition publique de la Société Royale de Gand.

M. LE VICOMTE HÉRICART DE THURY.

Du desséchement des terres cultivables sujettes à être inondées. 8vo. *Paris*, 1831.

Rapport sur le concours de la Société Royale et Centrale d'Agriculture, ouvert pour le percement des puits forés. 8vo. *Paris*, 1830.

Etat de l'Horticulture à Marseilles et dans le département des Bouches du Rhône. 8vo. *Paris*, 1832.

Deuxieme exposition publique des produits de l'Horticulture, des Arts, et de l'Industrie dans l'Orangerie des Tuileries, 8vo. *Paris*, 1832.

JOHN DISNEY, ESQ. F. H. S.

Rules of the Chelmsford and Essex Floral and Horticultural Society. 8vo. *Chelmsford*, 1832.

M. DUMORTIER RUTTEAU.

Florula Belgica.

N. GOULD, ESQ.

On the Pines of Canada. 8vo. *London*, 1832.

MR. JOSEPH HARRISON.

Horticultural Cabinet. Vols. 1 and 2. 8vo. *London*, 1833-34.
Gardener's and Forester's Record. Nos. 1 to 19. 8vo. *London*, 1833-34.

A. H. HAWORTH, Esq. F. H. S.

Narcissinearum Monographia. 8vo. *London*, 1831.

JOSEPH HAYWARD, ESQ.

An Enquiry into the Causes of Fruitfulness and Barrenness of Plants and Trees. 12mo. *London*, 1834.

DR. HOOKER, F. H. S.

Flora Boreali-Americana. Parts 2 to 6 inclusive. 4to. *London*, 1833.

CONDUCTOR OF THE HORTICULTURAL JOURNAL.

Horticultural Journal. No. 5. 8vo. *London*, 1833.

DR. HOSACK.

New England Farmer. 7 Vols.
New York Farmer and Horticultural Repository. 11 Nos. 4to.
The Practical American Gardener.
The New York Farmer. 6, 7, 8, 9. Vol. 4. 4to.

M. JACQUIN AINÉ.

Monographie Complète du Melon. 8vo. *Paris*, 1832.

CHARLES JAMES, Esq. F. H. S.

Plantarum Selectarum Icones Pictæ editæ a Nicolas Meerburg. folio. *Leyden*, 1798.

MR. WILLIAM KENRICK.

The New American Orchardist. 8vo. *Boston*, 1833.

T. A. KNIGHT, Esq. PRESIDENT.

Notice sur les gelées blanches et sur les effets de la lumière des astres et de la lune sous ce rapport par M. Feburier. 8vo. 1832.
Proceedings of the Horticultural Society of Paris. 8vo.
Transactions of the Berlin Horticultural Society. 4to.

MR. LANCE.

The Golden Farmer. 8vo. *London*, 1831.

PROFESSOR LEHMANN.

Catalogue of the Plants, Trees, and Shrubs cultivated in the Botanic Garden at Hamburgh. 8vo. 1831.

Plantas quasdam novas in Horto Hamburgensium Botanico cultas descripsit J. G. C. Lehmann, Horti Director.

Stirpium ab J. G. C. Lehmann primum descriptarum pugillus secundus. 4to. *Hamburgh*, 1830.

MR. GEORGE LINDLEY, C. M. H. S.

Guide to the Orchard and Kitchen Garden. 8vo. *London*, 1831.

DR. LINDLEY,

Outlines of the First Principles of Horticulture. 12mo. *London*, 1832.

Outlines of the First Principles of Botany. 12mo. *London*, 1831.

Berättelse uppläst uti Konglich Landbruks Academiens offentliga Samman Komst den 26 Januarii 1830 af Akademiens Directeur Grefol, A. G. Mörner. 8vo. *Stockholm*, 1830.

MESSRS. LODDIGES.

The Botanical Cabinet. Parts 157 to 200 inclusive. 4to. *London*, 1832-1833.

J. C. LOUDON, Esq. F. H. S.

Encyclopædia of Gardening. Parts 1 to 13. 8vo. *London*, 1834.

Architectural Magazine. Vol 1. No. 1. 8vo. *London*, 1834.

M. MAJENDIE.

Observations et Mémoires relativement à la destruction du Puceron lanigère. 8vo. *Caen*, 1830.

HIS EXCELLENCY COUNT MANDELSLOH.

Link on the Cultivation of the Cactus. 8vo. *Stuttgart*, 1832.

Der Blumen Gärtner. 8vo. *Stuttgart*, 1830.

COLONEL MAY, C. M. H. S.

Essai d'une Monographie des rosiers indigènes du Canton de Fribourg par M. Dematra. *Fribourg*, 1818.

Catalogus Plantarum in Valesia Sponte Nascentium. 12mo. 1817.

Mélanges Botaniques. Vol. 1. 8vo. *Berne*, 1819.

Beyträge zu einer Kritischen Aufzählung der Schweizerpflanzen von Dr. Hegetschweiler. 8vo. *Zurich*, 1831.

M. MIRBEL, F. M. H. S.

Recherches Anatomiques et Physiologique sur le Marchantia Polymorpha. 4to.

Catalogue des graines recoltés au Jardin du Roi en 1832. 4to.

Rapport sur le grand prix de Physique pour 1833. 8vo.

PROFESSOR GIUSEPPE MORETTI.

Biblioteca Agraria. Vol. 8. *Milan*, 1828.

JOHN MURRAY, ESQ. F. H. S.

Treatise on Aerial Electricity. 8vo. *London*, 1830.

Researches in Natural History, 2nd edit. 8vo. *London*, 1830.

Treatise on the Diamond. 8vo. *London*, 1831.

Manual of Experiments illustrative of Chemical Science. 8vo. *London*. 1828.

Treatise on Pulmonary Consumption, 8vo. *London*, 1831.

PROFESSOR NEES VON ESENBECK, F. M. H. S.

Plantarum Laurinarum Secundum Affinitates Naturales expositio. 4to. *Breslau*, 1833.

W. C. OLDHAM, Esq.

Catalogue des Fruits et des Plantes modelés, &c. composant le Carporama à Paris. 8vo. *Paris*.

MR. OTTO.

An Historical Account of the Berlin Botanic Garden. 4to. *Berlin*, 1832.

DR. CARLO PASSERINI.

Osservazioni e notizie relative alle larve pregiudicevoli alla pianta del gran Turco (Zea Mays). 8vo. *Florence*, 1832.

Osservationi sopra alcune larve e tignole dell 'ulivo. 8vo. *Florence*, 1832.

Memoria sopra due specie d'insetti nocivi alla vite della Procris ampelophaga e dal Cavolo arborea. 8vo. *Florence*, 1829.

Osservazioni sul baco dannegiatore delle ulive e sulla mosca in cui si transforma. 8vo. *Florence*, 1829.

MR. JOSEPH PAXTON.

Horticultural Register. Vols. 1, 2, 3. 8vo. *London*.

MONS. J. PHILIPPART.

Voyage agronomique en Angleterre. 8vo. *Paris*, 1830.

MESSRS. PRINCE.

Pomological Manual. Part 2. 8vo. *New York*, 1831.

MESSRS. RIDGWAY.

Botanical Register. New Series, Vol. 3. No. 8. to Vol. 7. No. X. 8vo. *London*, 1830-34.

Pomological Magazine Nos. 31 to 38 and Appendix. 8vo. *London*, 1830.

MR. HUGH RONALDS, F. H. S.

Pyrus Malus Brentfordiensis. 4to. *London*, 1831.

MR. J. B. RUPPRECHT.

Über das Chrysanthemum Indicum seine Geschichte, &c. 8vo. *Vienna*, 1833.

THE HON. MRS. RUSHOUT, F. H. S.

Voyage de Humboldt et Bonpland, Part 1 and Part 3. Vols. 1 and 2. 4to. *Paris*, 1810, 1811.

DON RAMON DE LA SAGRA, F. C. M. H. S.

Historia economico-politica y estadistica de la Isla de Cuba. 4to. *Habana*, 1831.

Introductory Treatise on the Horticulture of the Havannah.

Annals of Science, Agriculture, Commerce, and Art, Vol. 2. 4to. *Havannah*, 1828.

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